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MODIFICATION OF HALSTED'S OPERATION FOR CANCER OF THE BREAST.

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When operating on tumors or tuberculous glands in the neck it is generally wise to perform the most dangerous portion of the work first, by exposing the carotid packet of vessels; when this is done it is, as a rule, an easy matter to complete the operation. In the modern operation for excision of the cancerous breast the most anxious and tedious step consists in the exposure of the axillary vessels and nerves rendered necessary while removing the fat and lymphatics of that space. The common custom is to make the excision of the breast itself the first step, leaving the breast, however, attacht to the axillary fat, while the latter is being dissected out. The heavy and now loose breast is distinctly in the way and hampers the surgeon in his fine axillary dissection.

The writer begs to offer the following modification of Halsted's operation, which he has found useful; based upon the same principle as that applied to the carotid region. Dr. Hibbard, of Kansas City, and probably a host of other operators have independently devised similar or perhaps identical procedures.

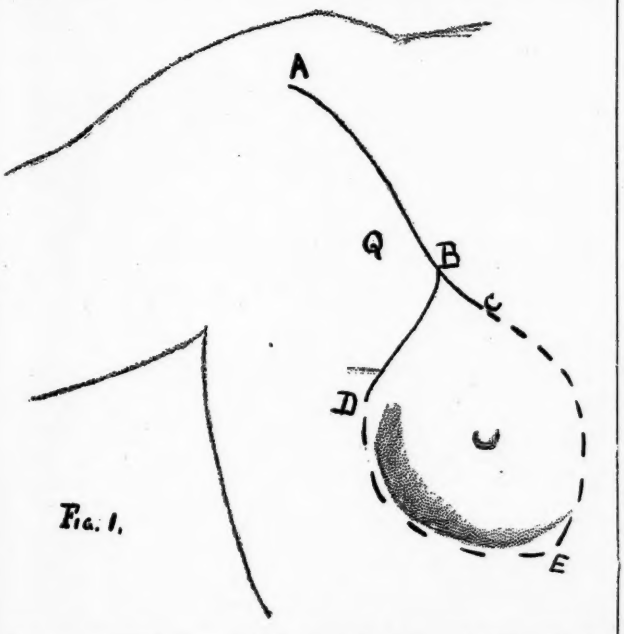

Fig. 1.

FIG. 1. ABCDE represents incision for removal of breast, etc. Those portions marked ABC, ABD are completed in the first stage of the operation, the portion of C E D is not completed until after the axillary contents are dissected loose.
Q. Flap to be retracted outwards.

STEP I. Make the inverted Y-shaped incision A. B. C. D. (Fig. 1), thru the skin but not thru the fat. Reflect outwards the flap of skin (Q) formed by the cuts AB and BD.

STEP. II. Demonstrate and divide the insertion of the pectoralis major and reflect that muscle inwards. (Fig. 2.)

STEP III. Demonstrate and divide the insertion of the pectoralis minor and reflect the muscle upwards. This completely exposes the axilla and its contents.

STEP IV. By careful dissection separate the axillary fat from the vessels and nerves and, working from without inwards, separate all of the axillary fat and lymphatics from their bed—leaving them attacht to the breast.

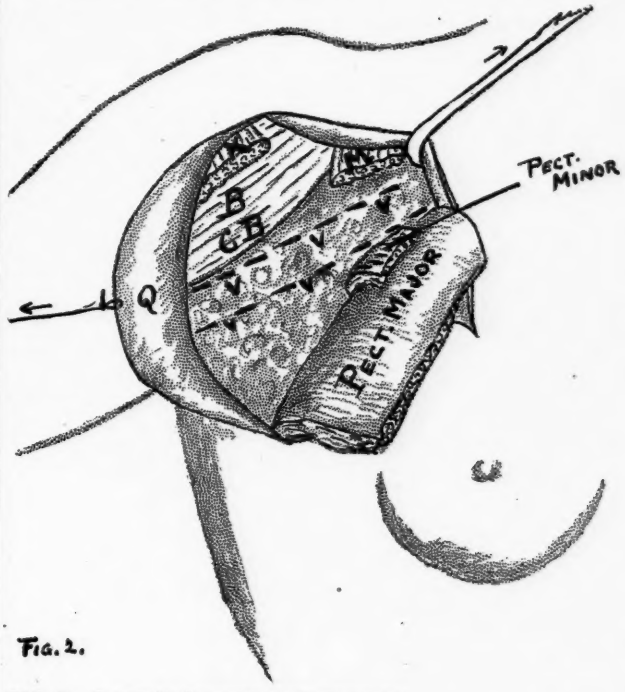

Fig. 2.

FIG. 2. Q equals flap retracted outwards.
B and C B equals biceps and coraco-brachialis.
M equals insertion of pectineus minor.
X equals insertion of pectineus major.
V. V. V. equals line of axillary vessel and nerves covered by the axillary fat, etc.

STEP V. Complete the skin incision around the breast (C. E. D. Fig I.) Separate the skin from the subjacent fat for as great a distance as seems proper around the breast.

STEP VI. Remove in one mass the axillary fat, the pectoralies major and minor, the mamma and as much of the subcutaneous fat as seems proper.

STEP VII. Close the wound as much as possible. The undermining of the skin necessary to the removal of a wide extent of fat assists in the partial closure of the wound. Cover all the remaining open wound with Thiersch's skin-grafts.

As will be seen, the operation is practically identical with that of Halsted except that the incision is done from without inward instead of from within outward. As much skin is removed with the breast as in Halsted's classical operation, but the original incision penetrates the skin alone, the skin is reflected centrifugally from the tumor and more thoracic fat is taken away. If it is deemed desirable to excise the supra-clavicular or cervical glands, such work would form another step in the operation.

The advantages claimed for the modified method of operating are:

1. The delicate axillary dissection is done while the surgeon is fresh, and he is not hampered by loose tumor mass getting in his way.

2. Hibbard points out that the breast, etc, remaining in situ while the tedious portions of the operation are being executed, prevents body cooling and hence obviates some shock.

3. When the breast is removed first, it must be manipulated by an assistant, while the surgeon works in the axilla; possibly such manipulations may drive some cancer virus from the diseased lymphatics into the circulation before all communication between the diseased structures and the axilla is divided.

PRIMARY CARCINOMA OF THE BODY OF THE UTERUS.

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The old adage that "it never rains but it pours" holds good with surprising frequency in surgery. Thus: Primary carcinoma of the uterine fundus is comparatively rare; at the Chicago meeting of the American Gynecological Society, last spring, I reported 24 cases—all that had come under my observation in my gynecological experience of sixteen years; yet since that time three additional cases have come under my care.

CASE I. Mrs. B——, aged 54 years, had passt the menopause some six years ago, the cessation being complete (no blood was seen from that time until about one year ago). Some ten or twlve months ago she had a vaginal show of blood, with bearing-down sensations, backache and pain in the abdomen. She had then prolapse of uterus and vagina—to which her symptoms were attributed; and a successful operation was performed for their relief. Subsequently she passt into the hands of another physician and, her symptoms continuing, she was curetted; the scrapings were examined microscopically and found to be cancerous. She was then referred to me for confirmation of the diagnosis of carcinoma of the uterine fundus and for operation. I removed the uterus and its appendages by abdominal section. The patient died promptly from immediate septic infection of the wounds, due to the foul, putrid discharge from the body of the uterus.

CASE II. Mrs. B——, aged 51 years, married 21 years, always regular in her monthly periods. Four years ago the uterus was curetted for too free bleeding, after which menstruation ceast altogether for two years. For the past two years there had been a little, irregular flow—at intervals of three to five weeks: uncertain as to time and quantity. She had lost a good deal of flesh in the last eight months. In June her physician sent me from Virginia some scrapings from her uterus, which I forwarded to the Ayer Laboratory of the Pennsylvania Hospital. The report was as follows: Sections show irregular growth of large masses of epithelial cells in the form of alveoli penetrating into the wall of the uterus; diagnosis—cancer of the uterine corpus. The report was mailed at once to the doctor in Virginia, with an urgent message to send the patient to hospital at once for operation. This fall I received a lettter from the doctor stating that both he and the patient were anxiously awaiting some word from me! My letter of early summer had been miscarried. Thus a delay of more than three months occurred. On removal of the uterus it was found that the malignant process had extended thru the fundus at one point and had infiltrated the tissues over the sacrum. The operation is too late, I fear, to be of permanent benefit.

CASE III. Mrs. A—— was sent to me from the interior of Pennsylvania for an opinion as to her condition. She had fully completed the menopause and several years afterward had begun to bleed irregularly, tho slightly. Indefinite pains in the back and pelvis, with loss of flesh and strength, gradually showed themselves. The cervix had completely disappeared and the fundus was somewhat enlarged. Cancer of the fundus was diagnosticated from the symptoms alone. Examination of the specimen after vaginal hysterectomy confirmed the clinical diagnosis.

Three patients—all of whom had suffered with a single symptom for a year or more, a symptom which of itself makes it inexcusable that operation was delayed for so long! It is to be remembered that in each of these cases the physician who finally brought the woman to the operating table did so within a few weeks after first seeing the patient (with the exception of the Virginia case—where the delay was not the doctor's fault). But what can be said of the physicians in whose hands these three women rested for a full year before coming for operation?

The patients had all passt the menopause: the monthly flow in all had ceast long since, and completely; after a year or more vaginal hemorrhages oft repeated had occurred!

The day is gone when any man practising medicine can justify himself for such neglect!! There is no use to mince words on this subject; and there is no possibility of our shifting responsibility to other shoulders. Such a history as here given means CANCER ninety-five times out of a hundred. The symptoms of bleeding, after the natural bleeding has ceast, is such a grave symptom that no practitioner of average intelligence should dare ignore or overlook it. There is no excuse for inactivity—no, not for even a week. Our hope of saving cancer cases rests largely in the ability of the physician to recognize the disease early enough to operate with success.

What of these three cases? One died from septic infection of the wounds due to advanced cancer, which could easily have been determined a year before, when the uterine tissue was not so rotten as to be dangerous from its foul discharge. The second with fundus adherent to the sacrum is practically certain of recurrence; a diagnosis of cancer a year before (which could have been made readily) would have given the operator no adhesions and no infiltration—a good and hopeful instead of bad and hopeless outlook. The third is extremely doubtful as to recurrence; a year ago radical cure would have been almost certain.

A year's delay, unnecessary, unjustifiable, in these three instances then means three deaths. Is this pleasant to contemplate? Is it a credit to our profession that such terribly fatal neglect can exist in this day and in the full knowledge of the importance of uterine hemorrhage after the menopause? I ask the question deliberately: Where lies the fault? Is it with the teachers or with the profession at large as pupils? I believe, candidly, the fault belongs to both. We who teach should certainly condemn ourselves for not more thoroly impressing upon our students and fellow practitioners the necessity for the most close and critical study of the bleeding of every woman who comes under our professional care; and, having profited ourselves, we may the more freely and unhesitatingly condemn such palpable neglect as that to which these three unfortunate women were subjected.

SKIN GRAFTING.

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The best results in skin grafting are obtained when grafts, cut after Thiersch's method are transplanted upon new, healthy, dry and aseptic granulation tissue.

In preparation of granulated surfaces for grafting, and in an attempt to meet all favorable requirements, many methods have been used more or less succcessfully. Practical experience has abundantly demonstrated that the use of the majority of antiseptics, especially the mercurial preparations, invariably endangers the ultimate succcess of skin grafting operations. The English method of preparation of septic ulcers for grafting by curettage and application of solution of carbolic 1-20 and bichloride 1-2,000 or by swabbing with 95 per cent carbolic or strong solution of chloride of zinc, then applying wet dressings of bichloride for two or three days, "until asepsis is assured," etc., etc., is best shown to admit of some improvement by a quotation from Watson Cheyne's Manual of Surgical Treatment, page 55:

"Certainly up to three months the grafts will, in all probability, be destroyed, if the patient walks about; hence unless that time can be devoted to the treatment, it is not worth while employing skin-grafting for ulcers of the lower limbs. By this, however, it is not implied that it is necessary to keep the patient in bed for the whole time, but merely that the foot must not be allowed to hang down, nor must any weight be borne upon it. At the end of about six weeks, the patient may be allowed to get up and lie on a sofa or sit with the leg on another chair, but it must not be permitted to hang down. At the end of about three months, he may be allowed to get about, but in order to prevent the detachment of grafts he should be fitted with a knee rest and peg on which he walks, the leg projecting out behind him. If possible, he should not put his foot to the ground till five or six months have elapst;" which graphically demonstrates how vastly healing of ulcers may be retarded by drastic treatment. After cauterization, whether by use of actual cautery or chemicals while "asepsis may be assured" for a few days, yet the consequent excessive muco-serous secretion and the usual formation of soft, unhealthy granulation tissue will produce an unfavorable base for skin grafts. In such cases it is questionable whether the grafting operation exerts any great influence upon the final healing of the ulcer, it is more probable that the continued confinement in bed and quietude of the part, with a reasonable amount of cleanliness and antiseptics results in the final cicatrization of the raw surface.

It is seldom that it is possible for a patient to devote six months to care and treatment. It is more often necessary to have the patient up and about and at work in a few weeks.

American surgeons almost universally recommend that no solution, except normal salt, be applied to a granulating surface in preparation for grafting for at least three days before operation, and no antiseptic treatment whatever after the grafts are in place, dependence being placed upon normal salt solution and

sterilized oil for maintenance of cleanliness and moisture.

In cases of specific, tubercular or any form of septic sloughing ulcers, it is almost impossible by employing any treatment yet advised, to obtain an aseptic, clean granulating surface, upon which skin grafts may be placed with any great degree of assurance of favorable results. A small amount of pus, or any considerable muco-purulent, or muco-serous exudate, or a base of soft, pale and flabby granulation tissue, or a field saturated with antiseptics will always endanger and too often destroy skin grafts.

During the past year the writer has used oxychlorine almost exclusively in irrigation of septic wounds, with very satisfactory results. On granulating surfaces and in various septic sinuses and fistulae, oxychlorine proved to be extremely efficient. Septic or an excess of aseptic secretions were quickly diminisht and avoided, the wounds soon filling and healing by clean, red healthy and firm new granulation tissue. In view of its satisfactory action, it was decided to apply oxychlorine in solution in preparation of granulating surfaces for grafting.

Upon exposed areas oxychlorine gave the best results when used in conjunction with aristol, which latter preparation appeared to have a very stimulating effect upon the formation and growth of new granulation tissue, with the disadvantage however of an accompanying excess of secretion.

This secretion was readily disposed of by wet dressings of oxychlorine in solution 1 part to 500 sterile water. Upon fresh raw areas where healing or filling in by granulation was desired, a dry dressing of aristol was applied and left from five to seven days, after which wet dressings of oxychlorine were alternated daily with the dry aristol. In a large number of cases treated as above described, the results were eminently satisfactory; the granulating surfaces being invariably found healthy, clean and aseptic.

In the three cases reported, a wet dressing of oxychlorine was kept on for three days before the grafting operation and patient brought to the operating room with dressing undisturbed. No application of saline solution was made at any time before patients were anesthetised. The grafts were taken from the thighs which were prepared the day before operation by shaving, thoro scrubbing with soap and water, application of alcohol, ether and oxychlorine, after which the field was thoroly rinst with sterile water, and a wet compress of normal salt solution applied.

TECHNIC OF OPERATION.

Instruments required are a sharp razor, hollow ground on the upper side and flat upon the lower, a scalpel, preferably long and narrow, two pairs of tissue forceps,a few hemostatics and a few long needles which, for sake of convenience in handling are held in artery forceps and used for teasing the grafts into position. The hands of the operator are prepared in the ordinary way, then thoroly rinst in sterile water or normal salt solution. No antiseptic solution whatever is to be allowed in the operating room; normal salt is to be used for every purpose.

The dressing on the thigh may be removed and the field gently cleansed with gauze wrung out of hot salt solution, after which it may be temporarily covered by gauze wet with the saline.

The wet dressings of oxychlorine are then removed and the granulating surface also rinst with salt solution. The granulations will be found to have a filmy appearance, and it is necessary to convert the entire area into a fresh raw and bleeding surface. This is done by shaving the outer layer of granulation tissue with the long, sharp scalpel. If the tissue at any point seems at all soft and unhealthy, it should be removed well down to firm granulation; oozing should be free from entire field. If surface does not bleed freely, it is aavisable to make numerous criss-cross incisions down to fibrous tissue. The skin edges should also be entirely vivified. A little pressure with gauze wet with hot normal salt solution, will readily control the oozing.

All blood clots and shreds of tissue are to be carefully cleared away.

In cutting grafts from the thigh, the skin should be put upon the stretch by an assistant, or the assistant may draw in one direction, using the flat of the hand, while the operator may use his left hand for traction in the opposite direction.

The razor is first dipt in salt solution and placed upon the skin, flat side down. Grafts are cut with a sawing motion, taking a little less than half the thickness of the skin. The size of the grafts depends wholly upon the amount of surface to be covered. In general, however, it appears that numerous small grafts, i. e., one-half to three-quarters of an inch in width and an inch long, do better than a few very large ones. The graft is easily severed from the skin by a quick sliding up-stroke of the razor. It is unwise to place the grafts in any solution after cutting. They should be transferred immediately to the field of operation.

It is well, however, after graft is cut, to dip the end of the razor into a solution of normal salt, thus taking a few drops of the solution upon the concave upper surface. These few drops will be quite sufficient to float the graft which then may be transpanted to the field by placing that part of it which usually hangs over the edge of the razor, in the desired position, and carefully slipping the razor out from beneath the graft. In this manner the graft is transplanted with a minimum of handling and without loss of its natural juices. The graft is then to be spread out, and gently teased into place by use of the needles.

It is questionable if any advantage is gained by over-lapping the grafts. They should be placed so as to just touch one another; a little overlapping does no harm, however, and may be necessary for complete covering of the raw surface.

The wounds on the thighs are dresst by dusting well with aristol or dermatol, and spreading over this a layer of gauze covered with vaseline. The vaseline prevents a subsequent disagreeable adhesion of gauze to the wound.

The grafted surface should be entirely covered by narrow strips of rubber dam to prevent any adhesion of the outer dressings, which, if at all adherent, when removed, are liable to tear the grafts from their beds. Over the rubber strips are placed layers of gauze wet with normal salt solution, and the whole envelopt in rubber tissue or oiled silk, thus forming a saline moist chamber.

The dressings should not be allowed to become dry, but should be kept constantly moist with salt solution. The dressings are left undisturbed for seven days, when they are to be carefully removed. A large amount of muco-serous secretion will be found covering the grafted surface. The edges of the grafts usually curl up and slough, but the centers will be adherent by plastic lymph exudate and the grafts will appear as little islands.

The field should be carefully cleaned with a solution of oxychlorine 1-500, (taking particular pains to in no way lift or move the grafts), and a wet dressing of oxychlorine applied. The dressing should be kept constantly moist with the solution and allowed to remain for from two to four days when the grafted surface will be clean and free of excess of secretion. If, after removal of the wet dressing, there appears to be no great amount of secretion, the field may be dusted with aristol and the daily alternation of aristol and oxychlorine continued as described for the preliminary preparation of the ulcer.

The grafts rapidly coalesce and a constant proliferation of epithelium from the skin edges takes place.

The aristol and oxychlorine treatment should be continued, or if the surface heals rapidly aristol may be dusted on daily, using the oxychlorine as a wash during the daily dressings.

After cicatrization is well markt, an ointment of aristol and vaseline should be applied until the scar is perfectly formed.

CASES.

CASE I.—Mr. F. McK., age 31, presented himself with an ulcer on outer aspect of middle third of right leg. About three months before had a chafed spot on right leg from wearing a rubber boot. This slought, and formed a shallow ulcer about one and one-half inches in diameter, which was quickly healed by his family physician. Soon afterwards a second ulcer started from a small pimple and rapidly spread in spite of various treatments, including cauterization by silver nitrate, etc. The ulcer was some four inches in length by three inches in depth, deep, foul, sloughing, covered with grayish green patches and forming a large amount of very foul secretion; edges indurated, with inflammation extending outward into skin for distance of an inch. Patient appeared otherwise in perfectly normal condition, and denied specific disease. Tuberculosis not present; no varicose veins. Diagnosis: Probable specific ulcer. Put patient on protolodide mercury (gr. one-eighth—t. i. d.), and immediately prepared for curettage.

First operation: Patient anesthetised and the ulcer thoroly curetted down to deep fascia and muscle. Indurated and inflamed edges cut away well into healthy skin. Raw surface dusted with aristol and dresst with plain gauze.

This dressing was left in place for seven days, when upon removal it was found that new granulation tissue had started rapidly, but with a very large amount of muco-purulent discharge and some sloughing. A wet dressing of oxychlorine 1-500 was immediately applied, and at the end of two days we found the wound clean and free from excessive secretion. Alternated dressings of aristol and oxychlorine were applied, until the end

of second week, when the granulations completely filled the wound and were firm, red, healthy and bleeding freely. The protoiodide was discontinued and constant wet dressings of oxychlorine applied for three days, when the patient was brought to the operating-room for skin grafting. The thighs had been prepared as before described.

Second operation: Patient was brought to the operating-room with antiseptic dressings undisturbed. The wound was perfectly clean. No secretions or exudate whatever. The granulations were firm, of good color and bleeding readily. Outer layer of granulation tissue shaved, oozing controled by pressure with hot saline gauze pads and grafts transferred immediately to ulcer without immersion in solution. Rubber strips were placed over skin edges only, and a wet dressing of salt solution applied. This was kept moist and left for a week, when upon removal, it was found to be somewhat adherent to that part of grafted surface not covered by rubber tissue.

All grafts but one had taken, but the wound was covered and dressings saturated with a large amount of mucoid secretion. After careful cleaning with oxychlorine, 1-500, a wet dressing of same solution was applied. At the end of two days the field was found to be clean and the grafts appeared healthy. From this time the alternating oxychlorine and aristol dressings were applied as described.

The grafts rapidly coalesced and skin edges made good progress. Patient walkt at the end of the third week. One small spot about size of a dime required curettage, otherwise healing was perfectly satisfactory. Entire raw surface had cicatrizised by end of fifth week. Five months later patient reported that region of ulcer was entirely covered with new soft skin.

CASE II.—Mrs. J., age 34, case of Dr. A. H. Ferguson, entered hospital with extensive recurrent carcinoma in region of left breast, following Halstead amputation seven months before. Operation was made July 3rd, 1901: The skin, fascia and old scar tissue on left side were removed from wide area; the axilla completely cleared, and the subclavian and portions of the occipital and inferior carotid triangles were dissected. The wound was very extensive, measuring fifteen by fourteen inches. The outer half of the clavicle was completely exposed on all sides, wound at this point being two and a half inches in depth. Patient being very fat, remainder of wound was from one to one and a half inches deep. Angles of wound approximated with silk worm gut, and incision carried below right breast, which was lifted towards the left side to cover as much of the raw area as possible, and held with retention sutvres of silk worm gut. Wound dresst with iodoform gauze, etc., and dressing lett undisturbed for five days.

Upon Dr. Ferguson's departure for Europe at this time the case was turned over to the writer. First dressing on the fifth day—wound in good condition, but secreting profusely, granulation not showing. A wet dressing of oxychlorine 1-500 was applied and left for two days, when wound was found to be clean. From this time the alternate aristol and oxychlorine dressings were given, with the usual resultant rapid growth of granulation tissue; oxychlorine dressing kept wound clean and free from excess of secretion, which was produced by the aristol. The growth of the granulations could be observed from day to day. On July 21st (eighteenth day after operation), the wound was completely filled to skin level, clavicle being entirely covered in as well, the granulations at this point having risen at least two and a half inches. A wet dressing of oxychlorine was then applied and left for three days, patient in the meantime being prepared for operation.

Second operation July 24th, 1901. Patient was brought to operating room with oxychlorine dressing undisturbed. Upon removal, granulations appeared firm, clean, red and healthy. Numerous small grafts were taken from the thigh and entire area covered, after vivifying as described in "Technic of Operation." The grafted surface was covered with narrow strips of rubber dam and outer dressing of salt solution applied.

This dressing was undisturbed for six days, when found that all grafts had taken, at least in their central portions. Damp dressings of oxychlorine were applied until August 7th, when patient left hospital. Coalescence of grafts and prolification of skin had been rapid, wound at this time being nearly covered in. From this time alternated dressings of aristol and oxychlorine were used. At end of third week all cicatrized except two small spots, which gradually closed.

At present the attending physician reports that the major part of wound is covered with new skin, but that the cancer appears to be returning in region of clavicle.

CASE III.—Mrs. S., referred to the writer by Dr. A. G. Shortle, entered hospital with extensive varicose veins of both legs. Condition of seven years' standing. Had numerous ulcers, especially in region of ankles and inner aspect both legs, which had been forming and healing alternately for five years. Had been treated by bandages, elastic stocking, salves, etc., etc., with no relief.

First operation—September 9th. Made long curved incision along inner aspect right leg from knee to ankle. Also semilunar incision behind and extending above and below external malleolus; and a long curved incision along inner aspect of left leg. Reflected all flaps and cut away all varicosities ligating with catgut; sutured skin with silkworm gut and inserted silkworm gut drains.

The wound behind external malleolus on right leg, and that on left leg healed kindly with no return of varicose veins, but the central portion of the long incision on right leg slought, leaving a raw surface four inches long by three wide. This was treated by the aristol and oxychlorine method. Owing to lack of nutrition the growth of granulation tissue was slower than desired; however, the wound being in good condition at the end of the fourth week, with a fairly good foundation of granulation tissue, it was decided to skin graft. Wet oxychlorine dressings were applied for three days before operation. Second operation October 14th. The skin edges and surface of wound were vivified, and in addition numerous criss-cross incisions were made in the raw surface to stimulate free ooozing, which was controlled by hot saline compresses. Area covered by grafts taken from thigh and grafted surface covered by strips of rubber dam, over which placed moist saline dressing.

Contrary to orders the patient got out of bed and proceeded to walk about the hospital ward on the fifth and sixth days. First dressing on seventh day after operation. All grafts but two had taken. These two were probably disturbed by patient's walking. Wound in good condition, but covered with secretion. Applied wet oxychlorine dressing. Eighth day dusted surface lightly with aristol. Patient left hospital on ninth day. The alternate aristol and oxychlorine treatment was continued until the end of the fourth week, when entire surface was covered in. At present the area is completely healed over with new skin. There has been no sign of breaking down, or appearance of varicosities.

TWO TUBAL PREGNANCIES IN ONE PATIENT WITH OTHER ECTOPIC GASES.

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In The Medical Standard of October, 1898, the writer reported five cases of ectopic pregnancy, four tubal and one interstitial or utero-tubal. Since that time he has had but two others—one occurring in one of the subjects reported at that time. As, altogether, they represent some variety, they are briefly repeated here:

OLD CASES.

CASE I.—Mrs. S., married two years, no previous pregnancy, misst her menses third time—other usual symptoms of pregnancy plus severe pain at times in right side and in uterus, and slight flow two or three times. Just after missing her third period she felt severe pain, with shock, and the appearance of a tumor in right side irregular in outline, very sensitive. Temperature subnormal. Diagnosis: Ruptured tubal pregnancy. Operation advised and declined. After a week the patient went to her old home, and family physician "softened" the tumor by poultices. Later—suppuration, abscess opened externally, fetal bones evacuated, pyemia and death.

CASE II.—Mrs. P., age 30, one child six years old. Misst one menstrual period. Just before next time was taken with pain, hemorrhage, with shreds of decidua, sensitive tumor of right horn of uterus, extending along the tube. Diagnosis: Probable tubal pregnancy. Symptoms not severe. Patient kept under observation by her physician. Symptoms continued until next day, when the ovum (placenta and all), came away, presenting the appearance of a cast of an enlarged tube. The enlargement at right horn of uterus and end of tube disappeared. Abdominal walls were lax, and altho not demonstrated by operation, I am sure it was a case of interstitial or utero tubal pregnancy aborting thru the uterus.

CASE III.—Mrs. F., aged 28, married two years. Abortion three or four months after marriage (information received after original report). History of uterine catarrh, missf one period and taken with severe pains and menstrual flow just before next menses due; some decidual shreds in discharge; extreme tenderness at right of uterus; patient stout and palpation unsatisfactory; no elevation of temperature. Abortion suspected and curettage done, but not much placental tissue found. Symptoms became more severe and temperature subnormal, when diagnosis of ruptured tubal pregnancy was made. Abdominal operation done, assisted by Dr. F. C. E. Mattison. Pelvis full of blood and tube ruptured in outer third, still bleeding. Removal of tube and prompt recovery. This is the patient that afterwards had recurrence of like condition on the other side, here reported as case six.

CASE IV.—Married seven years; nervous temperament; stout build; no pregnancy previously. History of uterine catarrh some years before. Graduated sounds were used to dilate the cervix once only. Two months later menses missf; next period, slight flow only for a day or two. A few days later, intense pain and distress; she could not be moved in bed, very sensitive to pressure or examination on left side. Signs of shock, almost collapse. Tumor in cul-de-sac of Douglas, freely movable.

Dr. H. T. Byford was called and confirmed diagnosis of ruptured tubal pregnancy, and operation was advised and done the following day per vaginam, Dr. Byford assisting. On opening the peritoneum blood escaped freely; the ovum and placental tissue were easily removed, the bleeding end of the tube secured with forceps, which was left on forty-eigh. hours. Recovery was interrupted by temperature for two or three days, but thereafter was more prompt than in Case No. III.

CASE V.—Mrs. A., aged 37. Referred to me by Dr. Schwab. Multipara; youngest child six years old. History of uterine catarrh. May 15th she missf menstrual period. A few days after time for second period she was taken with intense pain, accompanied by a flow which continued intermittently thru July and part of August. Examination August 20. Uterus found enlarged; tumor size of small fetal head, lying to the left, semi-fluctuating. No fever. Diagnosis: Hematoma from ruptured tubal pregnancy. Operation at clinic, College of Physicians and Surgeons, August 24. Aspiration per vaginam secured much dark, thick blood. Incision alongside of trocar, enlarged by dilating with forceps; evacuation of a large amount of clotted blood with tissue found to be decidua, but no fetal remains were to be found. Recovery.

NEW CASES.

CASE VI.—Mrs. F., same person as case 3, age 29, missf one menstrual period, and had usual signs of pregnancy plus pain in uterus, and on its left side. Ten days before her second period was due, she was taken with characteristic severe pains with lowered temperature, vomiting, shock—almost collapse. Diagnosis: Ruptured tubal pregnancy. Operation at Chicago Hospital: Abdominal incision, pelvis filled with blood; tube ruptured about an inch from uterus, upper aspect, placental tissue clinging to tube which was still bleeding moderately. Tube was ligated on either side of rupture, and debris cleared away with scissors. Uneventful recovery.

CASE VII.—Mrs. D., aged 30, married three years, one miscarriage, after which, chronic endometritis, missf one menstrual period middle of October, 1901. November 4, ten days before next menstruation was due, began to flow and noticed in discharge shreds of "light colored fleshy substance;" considerable pain, more or less periodical attended the flow; worse on the right side. She thought it a miscarriage. November 15, 1901, I first saw her, in the evening; flow had continued from November 4 more or less free, with shreds of decidua, pain increast, tenderness on right side of uterus, tumor same place easily felt per vaginam. No elevation of temperature. Diagnosis tubal pregnancy. Operation at Chicago Hospital, November 16: Abdominal incision, which proved to be fortunate, as there were adhesions which would have been difficult to deal with thru the vagina. Recovery prompt. Patient left hospital in two weeks.

Many causes of ectopic pregnancy are mentioned, Kelly (Operative Gynecology, Vol. 2, p. 429), mentions under the head of particular causes, nine conditions, assigned by himself and others, prominent among which are various mechanical occlusions of the tube. In none of the cases here reported was there mechanical obstruction of the tube, so far as could be determined by careful examination, i. e., other than that due to chronic salpingitis and endometritis. The latter, which is not enumerated as a particular cause, was, in my judgment, the primary factor in all the cases cited. In the diseased condition of the uterus extending to the tube, the granulation tissue interfering with normal movement of the secretions, and to some extent blocking the passage to or from the tube, I believe we have the prime factor in a great majority of cases.

In most of the cases mentioned there had been spontaneous abortion, due, I believe, to endometritis. In all but one, the history of which was not obtained, there had been uterine catarrh. Nearly every case was curetted, and the scrapings showed the characteristic tissue found in endometritis, besides the decidual remnants. Case 1 would probably have been saved by operation; while Cases 4 and 5 would probable have recovered without operation, altho not so promptly or certainly as with operation.

GROWTHS IN THE FEMALE BREAST.

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In undertaking a consideration of this subject, I do not do so expecting to bring out anything new, but to refresh our minds on, and emphasize, perhaps, some important features connected with the subject. No practitioner of medicine can be long engaged in active work before he is called upon to pronounce upon the nature of a growth or so-called "swelling" in the breast. In case it should not be unmistakably cancerous, a diagnosis is not always easy or clear. It is my purpose therefore to very briefly review the nature of some of the growths occurring in the breast, in order that we may the more readily arrive at a differential diagnosis.

VARIETIES.

The breast is, so to speak, a bunch of connective tissue embedded in a mass of fat. There is a class of growths occurring in the breast termed non-malignant. These tumors may be fatty, fibrous, mucous or cartilaginous. These tumors made up of embryonic or transitional connective tissue, are malignant, and termed sarcoma. Some tumors when formed solely of glandular tissue are innocent—non-malignant—but once they become mixt with the elements constituting sarcoma they become malignant, and are denominated adeno-sarcomas. A simple adenoma of the breast is very rare—which fact must influence our recommendations and procedures. Cells atypically related, that is, out of place, in the fibrous stroma of the gland, are termed carcinomatous. In the adenoma there is a misplacement, a haphazard arrangement of not only the epithelial elements, but of the ducts and connective tissue, a distortion, so to speak, but the cells do not infiltrate surrounding tissue like carcinoma. An adenoma is usually of slow growth, requiring years to become of a troublesome size in contra-distinction to cancer. The tumor is movable, with no contraction of the nipple or enlarged glands in the axilla. Tho benign, there is but one treatment, that of free incision. If we are quite certain that we have only an adenoma to deal with, we need not remove the glands from the axilla as in carcinoma. With a free incision there is very little danger of recurrence. The most common form of adenoma met with in the breast, is the adeno-fibroma, which is nothing more than a hypertrophied connective tissue mixt with normal or altered gland-tissue.

Pain in the breast of a woman often causes great anxiety. If it is of a lancinating character, and runs down the nerves of the arm, without the presence of a tumor in the breast, it would be considered and treated as a neurasthenic condition. Enlargement of both breasts is usually the result of a hypertrophy. These are soft, painless, and free from distinct nodules; medical treatment in this condition suffices: Unguents of iodoform, alum and lead washes to the breast spread over with rubber tissue, followed in time by compression and support.

Inflammatory swellings of the breast may occur in the male or female, old or young, as the result of a trauma or irritation or as they sometimes appear without known cause, and are quite likely to eventuate in abscess. Abscesses in the female breast are most frequently seen in the parturient following a crackt nipple which has been neglected and has afforded an avenue for the entrance of microbes. A case of this character may undergo resolution or go on to suppuration, leaving a thickened area in the breast, to remain probably thru life. Chronic cases of this character have been mistaken for cancer, but as they do not grow as steadily or as rapidly as cancer that mistake should hardly occur. The pain and persistent tenderness with a hard area in the breast leads one to fear cancer at least. These cases may be successfully treated by belladonna plaster and compression, with the internal use of iodides and tonics. Tubercular breasts are quite likely to be secondary to neighboring tubercular trouble. In this form of growth in the breast we are quite likely to have enlargement of the axillary glands which exhibit a tendency to suppurate and form sinuses. The treatment should

consist in early extirpation of the breast and enlarged glands, tho perhaps not necessarily so thoroly as in carcinoma. Cysts of the breast are quite common, and usually fluctuate at some point, while at other points they may be hard.

Gaudier's experiments went to show that nodules in the breast were due to infection with the staphylococcus, and that these nodules in turn were converted into cysts. How much of truth there may be in this I am not prepared to say; it serves to explain the presence of cysts in some cases. Adenosarcoma tends to form embryonic connective tissue, and not hyperplastic. It is composed of small spindle-cells, imperfectly organized, fibrous tissue infiltrated with numerous round-cells. Cysts are often scattered thru the growth. The tumor was probably in its beginning benign, and afterward became so changed in its cell elements as to become malignant. This form of growth occurs usually in middle life, and grows very rapidly, but does not involve axillary glands.

If we have an adenoid tumor which has existed a long time, with little change in size, and which suddenly begins to grow rapidly, we may justly suspect that it is changing from a benign into a malignant tumor, probably a sarcoma. Sarcomas of the breast are usually of the large spindle-celled variety, tho all forms may be found here. Quite one-half of the sarcomas of the breast undergo cystic degeneration and discharge from the nipple in many. This disease occurs in patients from 20 to 35 years of age. Sarcomatous growths of the breast grow to one side of the breast oftener than by involving the entire organ. The breast proper is frequently presst to one side so forcibly that atrophy of the breast ensues. The overlying veins are usually enlarged early, and the tumor is not adherent to the skin. In the later stages there is a tendency to ulceration from pressure. The ulcer is circular. The growth may speedily invade the chest and involve the lung. The sarcoma differs from the carcinoma in occurring earlier in life, is more movable, less uniform in density, with absence of retracted nipple or invasion of the skin, induration of glands and fixation to the chest wall. If there is ulceration there is no skin infiltration as in carcinoma.

The treatment of sarcoma is clearly limited to excision, as is carcinoma, but in sarcoma the glands need not be extirpated unless enlarged, while in carcinoma I think one is never excusable for leaving the glands of the axilla, even tho no evidence of involvement can be adduced. Carcinoma of the breast as in other regions, is a disease of advanced life, seldom occurring before forty years of age. The earlier in life it occurs the more rapidly it grows. Cancer of the breast has frequently been attributed to a trauma or some sort of irritation, and nearly every one is ready to admit that there is more than coincidence in the case. Of the real nature, however, little is definitely known.

The tumor which is most often found in the breast has been termed scirrhous, meaning hard. In time as this hard nodule grows, the skin becomes adherent to it, the nipple is drawn in, and the glands in the axilla are first involved, and a little later those above the clavicle. The skin over the tumor becomes leathery and less pliable. If unoperated the enlarged glands in the axilla cause pressure on the veins, and swelling of the arm and hand results. The patient gradually fails, becomes pale and cachectic, and finally dies. We might be troubled in arriving at a diagnosis between a cancer and an adenoma, but if we remember that an adenoma occurs earlier in life, grows slower, is more movable and circumscribed in its growth, with absence of enlarged glands, no involvement of the nipple or skin, with the absence of general constitutional symptoms, such as cachexia, we may feel reasonably certain of our diagnosis.

DIAGNOSIS.

What has been said of one form of cancer applies practically to all forms. We must bear in mind in this cursory review, that some of the manifestations in growths of the breast are not diagnostic as, for example: Pain, hardness, fluctuation, movability or fixation. These of themselves are worth little in diagnosis. Our great fear from a growth in the breast is always cancer. Here, as elsewhere, it is desirable that an early diagnosis should be made, while yet the growth is benign, as the tumors doubtless are in the early history. In the later, possibly too late, stages, it is comparatively easy to make a diagnosis, but in the very early and advantageous period, it is not always easy. For this reason I have gone over (but imperfectly), some of the growths found in the breast and have pointed to their clinical history, and have endeavored to compare or contrast them with those of carcinoma. We find by investigation that there is so great a similarity between benign and malignant tumors in their inception that a differential diagnosis is impossible when we have only the clinical history to guide us. Our conclusions then must be that every growth in the breast must be viewed with apprehension and studied with the greatest care. To say that every growth of the breast should be removed for fear that it might be a cancer, would probably not receive the endorsement of our best clinicians or operators. But procrastination is a thief of valuable time in those cases destined to become malignant; and I say "become" advisably, as I believe, that early in their history they are benign.

OPERATION.

Having determined upon an operation, what shall it be? Shall it be a make-shift, an operation that any one can do, or shall it be a thoroly scientific one, based upon facts attained by a clinical study of the subject, and one which only a competent operator can perform? I think there can be but one answer. To leave the glands of the axilla, whether involved to an appreciable degree or not, when operating for carcinoma of the breast, is nothing short of criminal! The Halstead operation bears the test of extended application. Several cases have come under my observation where only the breast was removed for carcinoma, leaving the avenues of infection, probably already impregnated with cancer germs (or the means of infection, whatever that may be), to develop in a short time in the glands somewhere, making it infinitely difficult, if not absolutely impossible to extend any hope of relief.

I have now in mind a Mrs. H., operated upon not far from this city by one of our leading surgeons. The axilla was not invaded by the surgeon's knife, but was by the cancer germ shortly. Subsequent operations were too late, and her suffering was only ended by death. Another woman was sent to me from Northern Missouri, from whom an excellent city surgeon had boldly removed the breast, leaving the glands of the axilla. In her case large glands were to be found in the axilla, and over the chest wall down to the incision. She, too, is dead. And so I might call to mind others, but I do not wish to dwell upon the subject lest it might cause discomfort to some one who has not seriously considered the natural history of the disease.

Finally I assume that we must all agree that not only should the breast be removed, but that the entire chain of lymphatics to the axilla and possibly those in the supra-clavicular region also.

While we would strenuously urge operative interference as the only means from which the patient may hope for relief, we would like to emphasize the fact that it MUST BE EARLY. Late surgery in carcinoma, when it is no longer regional, circumscribed or capable of being entirely encompasst by the tissue removed, is more than useless, and destined to hasten death and make afraid those who yet might get relief from surgical intervention.

To go into the details of the operation is not necessary at this time, as all who operate have the technic well in hand. I may be pardoned, however, I hope, if I make but one or two allusions. First: I think the incision for removing the breast should be as free from irregularities as possible. Symmetry should be observed in the lines of incision looking toward good apposition of the wound edges. A matter of no little importance is to secure the greatest amount of usefulness of the arm following the operation. This, I have found to be obtained by dressing the wound with the arm extended in the pronated position, a position recommended by Furguson, of Chicago, the hand being fastened to the head of the bed, until healing shall have taken place. The result is, there is no contraction of the scar or binding the free use of the arm, the patient from the first being able to place her hand anywhere on her head. The drainage of the axilla should be made by passing a rubber tube thru a counter-opening made for the purpose thru the lower flap in order that the drainage may be perfect, while the patient is in the recumbent position.

In conclusion, I wish to repeat that I claim in this paper nothing original; my only aim being to call attention to important points connected with the subject.

REMOVAL OF FOREIGN BODIES FROM THE AIR PASSAGES,*

BY DE FOREST WILLARD, M. D., PHILADELPHIA, PA.

The entrance of a foreign body into the larynx is at once the signal for violent expulsive efforts, and in the majority of instances voluntary extrusion is accomplisht. Should the object, however, pass the vocal cords, the route to the bifurcation of the trachea is free and unobstructed. At the bifurcation, as the right bronchus is larger and turns at a less abrupt angle to reach the root of the lung, the body is more likely to fall into its lumen, altho this result is by no means positive. If the object is of irregular shape it will not closely fit, and violent efforts at coughing may still loosen it. It may, however, be arrested in its reverse course at the vocal cords. The violence of the efforts, and the interference with the air supply, unfortunately make

*Abstract of paper read at the Fifty-second Annual Meeting of the American Medical Association. Full report may be found in the Journal of the Association.

inspiration suction as sudden and nearly as intense as expiration, and the offending object may be suckt further into the air passages. The position of final fixation will depend upon these efforts and upon the size and character of the foreign body. The degree of air hunger will depend upon the amount of blockade. Should the entire main bronchus be obstructed, one-half the respiratory tract will be shut off and the dyspnea becomes extreme. Unfortunately, the physician is rarely at hand and immediate professional measures of relief cannot be instituted..

The majority of these accidents occur in children; consequently, it is well to instruct parents as to the procedures that should be adopted. The rule as ordinarily taught is to the effect that inversion of the child is unsafe, since the object may become blockt within the larynx. As the body has, however, entered by this route, and it is the one that must be taken in any voluntary expulsion, it is probably the safest domestic practice that can be instituted and may prevent the object from being suckt still lower in the bronchus. An exaggerated prone Trendelenburg position may well be maintained until the arrival of the surgeon. Pounding the individual and vomiting have occasionally dislodged the body. Coughing should be encouraged, but the violence of inspiratory movements should be restricted as far as possible. Brodie reports the case of an adult in whom a half sovereign had reacht the bifurcation of the trachea. By inversion of his body in the prone position, and succusion, he was able, after six weeks, to dislodge the offender by coughing, and full recovery ensued.

If the arrest has taken place by the vocal cords, a laryngoscopic examination will probably reveal it, and it may be extracted by forceps or by laryngotomy. In splitting the thyroid cartilage and opening the larynx, care should be taken to keep directly in the median line and to avoid injury to the arytenoid cartilages and muscles. Cocain should be applied to the mucous membrane both before and during the operation, to prevent reflex inhibitory influences upon the heart.

If an x-ray apparatus is at hand, and the foreign body is one which is impenetrable to these rays, as coins, nails, etc., the location may sometimes be accurately determined by making shadowgraphs at different angles. Unfortunately, the distress is so urgent and extreme that it is difficult to induce the child to remain quiet long enough to obtain such a shadow unless ether is administered; still, the x-ray representation fills a most important place in both acute and chronic blockades of the air passages.

With children, beads, beans, portions of whistles and toys are common intruders. Hard bodies will probably imbed themselves and do not offer much opportunity of being seized by forceps. Vegetable substances are likely to swell from the moisture if they remain long in situ, and are, therefore, difficult to dislodge.

It is important that the history should be reliable, and when a body has been swallowed, close investigation is necessary to determine: first—whether the object has entered the air passages, and second—its location. Of course, there are many cases where the symptoms are unmistakable, but when in doubt a most careful diagnosis should be made. A young child not infrequently has a foreign body in its mouth; is seized with violent coughing as the body attempts to enter the larynx, and yet it passes into the stomach. Not a few tracheotomies have been performed in the search for such objects which have later been passt per rectum; consequently, it is unwise to operate in the absence of definite symptoms. Moreover, many a child has been apparently choked with a toy which was supposed to have been swallowed and which has ultimately been found in the corner of the nursery.

Following impaction, the pain and the absence of the respiratory movements will usually be found upon one side of the chest. The absence of vesicular murmur shows the interference to entrance of air, which will be followed later by dullness and signs of consolidation. In partial occlusion the respiration will be stridulous. The interpretation of these signs, taken in connection with other symptoms, must rest with the surgeon, but he must not be deceived by the lull in symptoms that not infrequently follows the initial blockade.

TRACHEOTOMY.

Opening the trachea is naturally the most frequent method for reaching an impacted foreign body. Speedy relief is usually demanded, and ether or chloroform may be employed (or better, local anesthesia in order to retain the use of the extraordinary muscles of respiration). In doing this operation it is better to remove a considerable circle, excising one or two cartilaginous rings, since a simple slit may interfere with the expulsion of the body. If a slit only is made, lateral stitches holding it open are better than a tube. Not infrequently the foreign body is ejected by the primary cough induced by the operation; consequently it should be the duty of an assistant to watch carefully for its appearance. Fortunately, expulsion occurs in about one-half the cases operated upon. This result may be hastened by irritation with a feather. The opening should be as nearly as possible to the top of the sternum, and the forceps must be used with extreme care. The difficulties in locating the body with tracheotomy forceps depend largely upon its character. A bean or kernel is of the same consistency and feeling as the cartilaginous bifurcation of the trachea. If the object is known to be a soft vegetable one, ordinary serrated forceps will not hold. Very short needle-like teeth which will sink into and hold the substance are better. With beads, buttons, tin whistles, etc., successful removal becomes difficult, even when they can be graspt.

For hard objects a large soft-rubber tube attacht to a Bigelow litholapaxy evacuator may be carried down the trachea, and strong suction made upon it, or an aspirating pump or rubber ball may be attacht. The evacuator is better, however, lest the body once extracted be again suckt back into position. In case of tacks, nails, etc., a small magnet or an electrical probe may be inserted thru the trachea. Blunt curettes, wire hooks, scoops, loops, etc., are occasionally useful.

The dangers to the trachea and bronchi by prolonged instrumentation are very great and manipulations therefore should never be continued more than a few minutes. The risks of pneumonia are so greatly increast by instrumentation that Weist, in an analysis of 1,674 cases, found that the dangers of death from this cause in unsuccessful cases fully counterbalanced the benefits obtained by the number of extraction from tracheotomy. The proportions are one death in three and one-half cases without operation; one in four with tracheotomy. His conclusions in regard to this subject will probably not be materially changed by our present methods, since, altho the pneumonia is septic in its origin, yet the sepsis even in former cases was probably not due in large measure simply to the instruments, but to the traumatism to the bronchi. Experiments show that the entering air is septic in the larger bronchi, but aseptic in the smaller divisions.

Failing to secure the intruding object thru the tracheal opening, the surgeon is compelled to face two problems, either of which means serious risk to life. Shall he abandon the case to the expulsive efforts of nature? Shall he rely upon the fact that many such offending bodies have been cought out even after many years of suffering, and even when the diagnosis of tuberculosis of the lung has seemed positive? In determining the question the surgeon will consider both the character of the foreign body and the amount of interference that it is giving to the air supply. In the case of seeds, etc., voluntary expulsion with subsequent recovery occurs in nearly 74 per cent of cases.

THORACOTOMY.

The other alternative is to reach the bronchus by a direct route. Should the surgeon decide to invade the chest wall in a heroic effort to reach the bronchi, he has before him a series of manipulations, perils and difficulties that will put to the extreme test his skill, coolness and judgment. Before the introduction of the artificial respiration apparatus, the profound and deadly collapse that immediately followed any invasion of a healthy chest, was sufficient to deter most operators from undertaking such a course. Fortunately, we are now better equipt and can confidently rely upon our artificial-respiration methods, but without such accessories the conditions are appalling. The exceptional cases in which atelectasis does not occur are so few in number and are so unexplainable that they cannot be depended upon. The surgeon must also consider the fact that even when the bronchus is reacht by any route, the rigid walls prevent the easy recognition of the foreign body either by sight or touch. Again, even when found in a secondary bronchus, it cannot always be reacht or extracted.

When an opening of any considerable size is made in the pleura and air rushes in, the sudden symptoms of collapse are usually instantaneous. The sudden shift of the oxygenation of air upon one-half of the ordinary circuit; the violent efforts of both inspiration and expiration; the enormous movement of the lung in the effort to produce a vacuum in the chest; the flapping of the pleura and mediastinum; the huge swelling veins filling and emptying and covering the area of operation; the great peril of the patient; the cyanosis and deficient oxygenation are such complications as will greatly delay and often entirely prevent all safe manipulative measure. I call attention to these difficulties, not to exaggerate them, nor to deter any surgeon from invading the chest wall, but only to warn against rash work without proper apparatus, since failure will necessarily bring discredit upon the surgeon and disaster to the individual. A somewhat extended but still incomplete examination of the literature on the subject fails to reveal even one recovery after

opening of the bronchus! My object is only to urge that, unless an artificial-respiration apparatus is at hand, and oxygen obtainable, it will be wiser to cease one's operative methods, after short manipulations thru a large tracheal opening. With full appliances, however, and a full knowledge of the dangers, one may calmly proceed to enter the chest by a selected route. The conditions are entirely different from those encountered in a diseased lung or pleura, and preliminary injection of air or liquid will avail but little. A small dose of atropine will be helpful.

The oft-tried expedient of plugging the hole in the pleura, or of dragging the lung into the opening, or of grasping the base of the lung, is here of no avail, since the search for the bronchus is absolutely prevented by any of these procedures. Air hunger being then the most serious of the complications, some reliable means of artificial respiration must be at hand, or the patient must die in a few moments. Fortunately, the Fell-O'Dwyer apparatus gives us the much-needed help. The apparatus consists of intubation tubes of various sizes attacht to a handle, by means of which one of them of proper size can be held permanently within the chink of the glottis, while air is pumpt directly into the lung by bellows workt by hand or foot pressure. Insufflation is accomplisht by moderate pressure about fifteen times in a minute, while expiration is accomplisht by the resiliency of the chest walls.

Matas has improved upon the apparatus by using a double pneumatic pump, by means of which the exact amount of air introduced can be measured. He has also attacht a manometer to regulate the degree of pressure, and has added a branch tube thru which anesthetization can be kept up. The entering air is also filtered thru a cyclinder filled with cotton. The pump can also be employed for forcible aspiration of air from the lung. Bloom, Doyen and others have altered these instruments, but the principle of forcibly supplying air is the same.

After tracheotomy the intubation tip can be introduced thru the opening so as to fit the trachea, or it can be carried into the glottis and the wound closed.

A pressure equal to 6 mm. mercury has been found sufficient to dilate the lung, while too great pressure, as 33mm., will interfere with respiration. If too great force is used, emphysema or air vesicle rupture may take place. The artificial movements should correspond as closely as possible to the normal respirations.

By the employment of such an appliance for carrying on respiration, the chest wall may be opened either anteriorly, posteriorly, or at the side. A large opening, while much more dangerous as regards atelectasis, yet greatly facilitates the operation. The employment of a tiny electric bulb within the chest also adds greatly to the rapidity and safety of the manipulations.

ANTERIOR THORACOTOMY.

Milton has recommended an operation of entrance which he calls the normal thoracic invasion, and has successfully practist it upon a living patient. In young children with flexible bones it would be feasible for reaching the bronchus. With a saw he splits the sternum longitudinally thruout its entire length, and forcibly retracts the halves, thus separating the two pleural layers, and reaching the anterior mediastinum. In attempting this operation it should be remembered that the pleurae come together not in a median line, but at a line nearly at the left border of the sternum. In this, as in all other routes of entrance to the thorax, it is absolutely essential that an efficient artificial respiration apparatus shall be constantly employed in the prevention of collapse.

Gaston's anterior opening is made as follows: A quadrilateral trap-door flap is made to include the third, fourth, fifth and sixth ribs, and turned back upon its base at the costal cartilages, thus avoiding the internal mammary. The outer end of the square flap is at the mid-axiliary line ,and the entire chest walls are cut thru with knife and saw.

In making an anterior thoracotomy I have tried various forms of incision. The bronchus of the second lobe can be readily reacht anteriorly, can be incised and afterwards sticht with a staphylorraphy needle. In another operation upon the right side, with excision of the fifth rib, I was easily able to expose the bronchus or the right upper lobe. The bronchial, pulmonary and a very high azygos vein were pusht aside and the bronchus incised for a third of an inch without wounding any other structure. Whenever the wound in the bronchus was not subsequently stitcht and the chest wall was closed at the end of the operation, each inspiratory act caused an increase of the pneumothorax by entrance of air thru this slit, as was evidenced by the bulging of the wound and the increast dyspnea, ending in death. The same thing occurred in another dog after an incision of the fifth rib, and an opening of the right bronchus. The pneumothorax steadily increast after the closure of the wound, with bulging and escape of air from within outward at each respiration until death occurred. It is easily seen that, while air can pass from the interior of the bronchus outwardly, the rounded shape of the tube prevents return from pleural cavity to bronchus. This air from the large bronchi is septic.

POSTERIOR THORACOTOMY.

Nesiloff, Bryant and others have proposed to reach the root of the lung posteriorly . Bryant's operation is as follows: In order to give room for the flap, the scapula is carried far outward by raising the arm and carrying the shoulder forward. A square flap three inches in size is made, with its base toward the spinal column, and three ribs, the third, fourth and fifth, are sawed thru as far out as their angles, near the posterior border of the axilla. The pleura is then separated from the anterior surface of the ribs by the fingers, and the flap is turned backward upon its base as a hinge, the ribs being separately turned out. The intercostal arteries are ligated before opening the pleura. The presence of the vena azygos and the pulmonary vein will greatly interfere with manipulations, and these, as well as the pneumogastric, must be carefully avoided. If the foreign body can be located, a long incision (long enough to permit removal without laceration) is made in the bronchus. The bronchus is not closed, but packt and drained, as there will be discharge of mucus and inflammatory products. The flap with the ribs should be replaced, but the middle rib may be removed entirely for drainage, if advisable. Any given spinous process indicates the situation of the vertebral extremity of the rib immediately below. Bryan places the division line between the posterior mediastinum proper and the posterior part of the superior mediastinum at the lower portion of the fourth dorsal vertebra. The separation of the pleura is accomplisht with the finger, and also by a sawing motion of a strong silk thread carried beneath the rib. The same ligature may be used to draw beneath the rib a chain saw, so as to operate from within outward and avoid premature wounding of the pleura. This opening is probably more favorable for reaching the esophagus than the bronchus. The bronchus in a man will be distant about one and one-half inches from the opening. The operation is one requiring careful manipulation, cool judgment, speedy recognition and skilful treatment of each danger as quickly as it arises.

Curtis, in a posterior thoracotomy for an impacted seed vessel of a plant in the right bronchus, tried to extract it with a forceps thru the trachea, but failed. At a second operation the boy was placed face downward, with one shoulder raised. A quadrangular flap was raised from the posterior portion of the chest and turned outwardly toward the scapula. Its free edge was near the vertebral spine. The fourth, fifth and sixth ribs were then stript. The lower layer of the periosteum and intercostal muscles were divided without opening the pleura. The ribs being lifted up, the pleura was carefully detacht from the posterior mediastinum and from the posterior chest wall. The bronchus was easily reacht, but the azygos vein covering it prevented incision. He encountered the same difficulties that I have always experienced, the violent action of the lung and of the flapping pleura, which interfered most seriously with all manipulations, and he was finally obliged to pack the wound and suspend his efforts. The next day he renewed his attack. The pleura had now become adherent to the lung, and the action was less violent. The bronchus was opened thru its posterior wall without hemorrhage, but search with forceps failed to find the body; neither could it be found in the trachea. It was finally discovered by the fingers feeling thru lung substance. The pleura was sewed to the lung and the lung held by a silk stitch. The thermocautery was used directly thru the lung substance, but failed to reach the object. The operation was finally suspended on account of the patient's collapse. A drainage tube was inserted with packing, but pneumonia developt on the following day and the patient died in forty-eight hours. At the autopsy the foreign body was found in the secondary bronchus near the end of the drainage tube. The object had been swallowed three days before the first operation.

Rushmore in a similar attempt anteriorly was compelled to abandon the operation, and the patient died.

When the foreign body remains perfectly fixt in the bronchus, septic pneumonia is a frequent result. In many cases this process leads on to septic abscess, or, if the blockade is complete, gangrene may result. Expulsion of the foreign body and of the purulent surrounding material sometimes occurs, often after months of delay. More frequently, however, death ensues. In the chronic cases the hemorrhage, emaciation and septic conditions often simulate tuberculosis. The proper treatment for all such abscesses or gangrenous areas of lung is a surgical one. The diseased area having been carefully located, a rib should be excised subperiosteally, and contamination of the pleural cavity prevented by suturing of the lung to the chest wall

in the form of a parallelogram, before opening. A sharply curved perineal needle with handle is convenient for this purpose. Incision of the abscess and free drainage will offer the best hope for cure.

CONCLUSIONS.

1. Coughing should be encouraged; forcible inspiration restrained.
2. Inversion in the prone position as a domestic practice is advisable.
3. Laryngoscopy is helpful if the body is lodged at the vocal cords. It may be extracted by forceps or by laryngotomy.
4. If time permits, the x-ray may be brought into serviceable use for diagnosis.
5. Careful diagnostic investigation is important to determine the actual presence of an impacted body, and its location.
6. Tracheotomy under local anesthesia should be the rule if the object is lodged at the bifurcation or in the bronchi. Tracheoscopy, suction and forceps' manipulation must be cautiously employed. Prolonged instrumentation adds greatly to the danger of pneumonia.
7. If extraction is not secured thru the tracheotomy wound the chest wall should not be invaded unless an artificial respiratory apparatus like the Fell-O'Dwyer is at hand, and oxygen available. With the assistance of these appliances, however, the bronchus may be reacht anteriorly or posteriorly, since, by their use, rythmical movements can be maintained.
8. Resultant abscess of the lung should be treated by incision and drainage.

STONE IN KIDNEY.

BY A. H. CORDIER, M. D., KANSAS CITY, MO.
Professor of Abdominal Surgery in the University Medical College.

Lee Crockett, age 38.—Four years ago he had an attack of pain coming on rather suddenly in the region of the gall-bladder. This pain was very intense in character, lasting for several days. A few weeks later he had another attack. A slight jaundice at this time was noticed. No enlargement of the gall-bladder or tenderness at that time. Several months later he had another attack very much of the same character, except that the pain was a little more "deep-seated," to use his language. A slight jaundice was noticed at this time. The jaundice present in his case at any time was very slight and transient. From this time up to seeing me he has had often repeated attacks of the pain. Some vesical irritation had been noted. The testicle on right side had been giving him more or less pain, and the retraction of same at times has been well markt. The pain has extended down the inner side of the right thigh and over the crest of the ilium—this being the distribution of the ilio-inguinal and the ilio-hypogastric nerves; the genito-crural supplying the cremaster and that immediate vicinity also gave evidence of reflex irritation. In some of his later attacks he has additional symptoms pointing to appendicitis, that is: tenderness and pain in the region of the appendix, with muscular rigidity, unilateral, and elevation of temperature. He has never noticed any blood in the urine. Riding over rough roads has often increast his pain very much.

On examining him I was unable to detect any enlargement of any organ or any growth in the abdomen; no tenderness directly over the appendix; no tenderness over the gall-bladder, but mid-way between the appendix and the gall-bladder there was some pain elicited on deep, firm pressure backward; especially was this true when counter-pressure was made over the region of kidney on the same side. The pain with this combined pressure was more severe in the back. Examination with microscope showed urine to contain an abundance of rhomboid oxalate of lime crystals, some pus-corpuscles and red blood-cells. Urine acid. Spec. gr. 1,028. Forty ounces passt in twenty-four hours.

In analyzing his symptoms and weighing the results of my examination a diagnosis of stone in the right kidney or upper part of the ureter was the most acceptable conclusion. The jaundice was transient in duration and slight in its intensity, hence I believed the primary attack was not in the gall-bladder. His jaundice history was not altogether plainly one of jaundice. His "appendicitis history" was easily explained at the time of the operation, owing to the location of the stone. His referred pain along the course of distribution of the genito-crural, ilio-inguinal nerves is explained also by the location of the stone.

At the operation the usual lumbar incision was made, the kidney carefully palpated and needled in all directions for a calculus, but none could be found. The kidney was partially delivered and the pelvis carefully palpated with equally disappointing results. The ureter was now followed for two inches and a stone the size of a small mulberry was found. This stone was irregular in size and was partially imbedded in the walls of the ureter; at this location there was well markt evidence of a peri-ureteritis, accounting for the tenderness, etc., etc., simulating appendicitis.

The ureter was not occluded, thus permitting urine and blood cells from this kidney and ureter to enter the bladder. A longitudinal incision was made directly down on the stone, as it could not be dislodged upward. After the stone was removed the opening was closed with silk sutures, a gauze drain put in from this point and usual dressings applied.

The first urine showed an abundance of blood in the urine—a good indication: the ureter was evidently left in a patent condition.

OPERATION FOR STREPTOCOCCUS INFECTION FOLLOWING LABOR.*

BY WILLIAM H. HUMISTON, M. D., CLEVELAND, O.
Associate Professor of Gynecology in the Medical Department of Western Reserve University.

Primipara, 23 years old, was delivered with forceps November 26, 1900. Three days later a slight chill was followed by fever: 103 degrees Fahrenheit. The uterine cavity was washt out with no improvement. The curet was then used, followed by daily intrauterine irrigations.

On the sixth day her temperature was 100 degrees and pulse 120 and weak; the fundus was midway between pubis and umbilicus; no distension of abdomen and but little tenderness. A deep laceration of the perineum (which had been repaired after delivery, but opened again) and the torn surfaces of the cervix were covered with a grayish slough, which in appearance was not unlike that of diphtheritic origin. There was markt cellulitis to the right of the uterus, extending to the pelvic wall (the side of the cervical laceration). In the evening of the same day temperature was 103 and the pulse-rate 160. The patient was vomiting and complained of severe pain.

She was admitted to the hospital early on the following morning. Her temperature was 104 and pulse 160, arhythmic, irregular and of small volume. Her general appearance was that of grave toxemia. There was grave abdominal distension and increast tenderness. She was having a septic diarrhea. A small quantity of urine was obtained by catheterization and found to contain granular casts and renal epithelium.

After thoro cleasing of the vagina and the uterine cavity, the latter was packt with iodoform gauze. A very free incision was then made thru the posterior vaginal vault, and the dissection carried upward and between the folds of the right broad ligament. There were several small foci of beginning softening in this area of cellulitis, but no pus formation as yet. When the pouch of Douglas was opened a large quantity of bloody serum, streakt with whitish flocculi, escaped. Examination of the Fallopian tubes showed that they were not involved in the process. After carefully drying the parts, two small pieces of rubber tubing were used for draining the cul-de-sac and the broad ligament. Iodoform gauze, rinst in hot salt solution, was used to pack the cavities. During the operation two quarts of normal solution were injected under a breast.

Cultures were taken from the cervical canal and the peritoneal cavity. From the latter, growths of the streptococcus pyogenes and of the bacilus coli communis were obtained; and from the cervix, the same together with the staphylococcus pyogenes albus. Cover-slip preparations gave the same results. No diphtheria bacilli were obtained.

In twelve hours the temperature was 102.4 and the pulse 116.

On the third day the temperature again rose to 103.2 and the pulse 130. On removing the vaginal dressings an abscess containing one and one-half drams of pus was discovered in the vaginal wall. After this was opened the patient progresst rapidly. On the fifth day the temperature was normal and the pulse remained below 100.

With the Fallopian tubes apparently normal, the infection of the peritoneum must have occurred by an extension from the cellulitis. Even tho, as in this instance, the physician may be in attendance upon cases of diphtheria and the slough may bear the characteristic appearance of diphtheritic exudate, bacteriologic investigation is necessary to determine its causation.

The absence of shock and rapid reaction were not due alone to the use of the salt solution, but to the rapidity and the ease with which the local septic conditions were cared for by the vaginal method. There was no necessity for complete narcosis.

*Abstract of paper read at American Medical Association.

and the limited amount of the anesthetic required minimized the dangers of unfortunate results.

An examination of the pelvis six months after the operation reveals a very satisfactory state. The obliteration of the cul-de-sac has made the uterus somewhat immobile, but this can be largely overcome by massage and judicious use of tampons. The right broad ligament, together with the uterine adnexa of this side, are practically in a normal condition.

I have reported this particular case in the hope that the promptness with which recovery followed operation in such a grave case may stimulate others to use the vaginal route in preference to the abdominal. I have not yet lost a case of puerperal sepsis where the septic foci were confined to the pelvis since my adoption of the vaginal method.

TREATMENT OF SPINA BIFIDA.*

BY PAUL F. EVE, M. D., NASHVILLE, TENN.
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Spina bifida is a congenital malformation in which there is a protrusion of the membranes of the spinal cord thru a cleft in the vertebral column, caused by arrest of ossification of the vertebral arches. It may be found at any point of the spinal canal, but is most often in the lumbar region (50 per cent; 12 per cent in the lumbo-sacral region and 25 per cent in the sacral). It is frequently associated with other deformities: hydrocephalus, cleft palate, etc.

The tumor varies in size from that of a marble to that of a man's head; occupies the central portion of the canal over the posterior aspect of the vertebral canal; covers the opening in the canal—the edges of which may be felt on raising the tumor. It is elastic, smooth and fluctuating—sometimes translucent. The skin covering may be normal, but more often is thin, even appearing only as a transparent membrane, which indeed sometimes ruptures. In some cases the tumor is peduncular; in others sessile.

In this malformation there may be entire division of the vertebrae, involving even the bodies, with partial or complete absence of the lateral arches; or there may be perfect development of the lateral arches with the want of union at the median line. The protrusion generally takes place during the latter months of the fetal life; it may, however, be unobserved until some weeks or months after birth.

VARIETIES.

At present there are recognized three distinct varieties of this affection: (1) meningocele, the protrusion consisting only of fluid held in the membranes of the spinal cord; (2) meningo-myelocele, where there is the addition of a portion of the cord in the sac; and (3) syringo-myelocele, the central canal of the spinal cord being dilated—thus forming the cavity of the sac.

It is a very fatal affection, few patients living more than five or six months. Death occurs from (1) convulsions, (2) ulceration of the sac, (3) rupture with septic meningitis.

Rupture of the sac during parturition means, usually, a still-birth; if not that, death in a few hours or days from infection of the cerebro-spinal canal.

In the diagnosis there are some very important facts which should be borne in mind. The tumor is congenital and occupies the central portion of the posterior aspect of the spine. By pressure it is diminisht in size, tension being easily seen at the fontanelle. By raising the tumor we are often enabled to discover the loss of the spinal arches and map out the bony margins of the spinal bodies; and when the child cries or coughs the tumor becomes more tense.

On account of the very fatal termination in the majority of these cases it can be readily recognized that the surgeon is warranted in pursuing any treatment which promises a prolongation of life or a radical cure.

TREATMENT.

Treatment can be readily divided into palliative and radical.

In the palliative treatment, when the tumor is small, or of moderate size, considerable pressure should be exerted upon it, either by the application of collodion, or a cup-shaped truss made either of surgeon's wool or some soft material, this pressure being maintained by a common roller bandage or adhesive strips. This treatment is suggested by a few accidental cures which have resulted by pressure being exerted by binders, which have been inadvertently placed tightly around the child's body, and in this way compressing the tumor. Some surgeons supplement this treatment by acupuncture, their method being by repeatedly pricking the thin portion of the cyst wall with a fine needle, allowing the fluid to ooze away upon an aseptic dressing; another method, following a similar course, is by tapping the cyst with a fine trocar and cannula, one or two drams of the fluid being drawn off at each tapping, gentle pressure being maintained either by pads of wool or cotton or the application of collodion.

In 1848 Brainard reported a number of successful results by the injection of iodine into the cyst. The rules laid down by him are: (1) to make the puncture subcutaneously in the sound skin by the side of the tumor, (2) to draw off no more fluid than the quantity of fluid to be injected, (3) to evacuate the contents of the sac and, if symptoms or irritation supervene, to replace this fluid immediately with distilled water. The solution he generally used was iodine and iodide potassium in the proportion of one-quarter grain of the former and three times the quantity of the latter to one ounce of distilled water. Morton's fluid has been lately employed more or less with success, and consists of 10 gr. of iodine, 30 gr. iodide of potassium to 1 oz. of glycerine. Two drams of the fluid are generally drawn from the cyst walls and replaced by the same quantity of this injection. These injections are repeated at intervals of from one to three weeks, so long as inflammation continues.

The radical operation consists in the excision of the sac. Bayer has reviewed the whole subject of spina bifida, and has discarded the treatment by acupuncture, seton, or trocar, and he properly and energetically condemns the injection of iodine or other irritants into the sac, and considers this condition to be one analogous to hernia, and suggests that the treatment of this affection should be maintained upon the same lines. He points out the danger of meningitis following this plan of treatment is no greater than that of peritonitis following the treatment of hernia, and as compared with the operation for hernia is both safer and more certain of success.

It does not seem to me, from the statistics gathered from the treatment by tapping followed by the injection plan (the results of which have been most unfortunate), we are warranted, especially in this aseptic age of surgery, to treat this affection after the suggestion of Bayer; especially when the tumor is small and peduncular. Some very brilliant results have followed this plan of treatment. The outlines of the operation are as follows: An incision is made thru the skin on each side of the tumor about an inch from its base and two flaps are carefully dissected off the tumor, the sac is then punctured, withdrawing the fluid, and the sac so cut and separated as to leave two flaps, one longer than the other. Should the nerves or portions of the cord be found adherent to the sac, they are carefully separated from the wall of the cyst and returned to the spinal canal. These flaps are now sutured, the approximation being so close that leakage will be impossible; the skin-flaps are now brought together by silk-worm-gut sutures; with transplantation of skin from the loin if there be not enough to cover the wound.

Among the rules laid down by authors may be found the following: Extirpation is unjustifiable in (1) very young infants; (2) cases complicated by extreme hydrocephalus or paraplegia; (3) when very extensive: (4) when there is a want of normal integument around the tumor. Most writers condemn ligation of the sac.

CASE.

Some of these points are controverted by the following history:

March 5 I was askt to see a baby which had "a fatty tumor on the back with a nevus at its most prominent point!" It had been growing rapidly for three weeks—which alarmed the doctor in attendance. With Dr. W. A. Bryan, I examined the child March 18 for the attending physician and found spina bifida between the scapulae, size of an orange, base of tumor covered with normal integument, surface at apex almost translucent; cleft in spine at fifth dorsal vertebra. Shortly after the birth of the child, December 27, 1900, the mother noticed a tumor the size of a partridge egg, which grew rapidly, increasing in size when the child cried. The pedicle had a diameter of only less than two inches, so I advised total extirpation, which was consented to.

Operation was made April 20, with the assistance of Dr. W. A. Bryan. Chloroform was the anesthetic chosen, but, as the patient did not do well under this anesthetic, it was changed to ether, which proved very satisfactory, the patient standing it excellently during the whole of the operative procedure. An irregular incision was made at the base of the tumor, the object being to obtain as large a skin flap as possible. The skin was dissected from the sac, which required a very delicate dissection for separation, and the pedicle disclosed, which upon examination proved to be about the size of a silver quarter. The pedicle was seized between two fingers for the purpose of seeing if there

*Abstract of paper read before the American Medical Association.

were any spinal nerves in the contents of the tumor, but none being discovered by this examination, a clamp was carefully adjusted to the pedicle and symptoms watchf. Nothing of an alarming character developing, the sac was opened at its side and drained. This incision was now enlarged and a very careful examination made of the contents of the interior of the sac, which proved to contain nothing but cerebrospinal fluid. The pedicle was now transfixt below the clamp by a needle loaded by a double silk ligature; this was interlockt and the pedicle ligated. The stump of the pedicle was stitcht by a double row of catgut sutures and made perfectly water-tight; the skin flap—which proved abundant—was approximated by silk sutures and the wound dresst.

From March 20 to March 25 temperature was below 100. First dressing, made March 20, showed no leakage, but March 25 the fever rose to 103 and inspection showed stitch-hole abscess. The stitch was removed and the wound closed and dresst, when the temperature immediately declined, and on March 27 was normal. Stitches were removed on the seventh day. Patient made an uneventful recovery and was discharged, well, April 8.

In conclusion, I desire to call attention to the following points:

The child I operated on was less than three months old; the tumor was rapid in its development, and threatened rupture was imminent; the pedicle was small, and consequently easily dealt with.

With authors to the contrary, I claim the only conservative plan that could be adopted is the one carried out in this instance; which leads me to say that, in the vast majority of cases, each individual surgical case is a law unto itself, and we have to exercise that good common sense, without which surgery would be at a standstill.

SPINAL ANESTHESIA AND CHLORETONE.

BY D. MacDONALD, M. B., C. M., ADELAIDE, SOUTH AUSTRALIA.
Bacteriologist to the Adelaide Hospital.

For the purpose of inducing spinal anesthesia in medical and surgical cases I have used a mixture of a saturated solution of chloretone with a one-per cent solution of cocaine. I have used the chloretone as a germicide to ensure the safety of the cocaine solution for intra-spinal injection. The dose of the mixture was generally two cc. In some cases an equivalent quantity of the spinal fluid was previously allowed to escape.

The puncture was usually made between the last dorsal and first lumbar vertebrae, in the middle line. A serum syringe with a long needle was employed, with the usual antiseptic precautions. Ethyl chloride was the local anesthetic.

CASE I.—J. S., aet. 11. This boy had been in a Thomas' splint for eight months. There was a large fluctuating swelling on the outer aspect of the right thigh. After the injection, an incision about six inches long was made over the swelling, and about two pints of pus were evacuated. The whole length of the abscess cavity was curetted and doucht. During the entire operation the boy was smiling. About two hours after the patient was slightly sick, but did not require any treatment. This was a case of psoas abscess.

CASE II.—J. S., aet. 49, had sustained a fracture of the lower end of the femur. An anesthetic being necessary, the fracture was set under spinal anesthesia in preference to general. The patient was sick afterwards, but not more so than occurs after a general anesthetic.

CASE III.—R. L., aet. 26—psoas abscess. The patient had had pleurisy six months before. There were physical signs of cardiac and lung disease, tho the sputum examination gave negative results as to the presence of tubercle bacilli. The case appeared to be suitable for neither ether nor chloroform anesthesia, and for that reason the spinal method was selected in preference. About two pints of pus were evacuated, and the cavity was efficiently curetted. No sickness developt.

CASE IV.—B., aet. 56, paracentesis vesicae. Patient suffering from stricture, hernia and retention of urine.

CASE V.—Injury to bone and repair of tissue below the ankle. Casualty.

CASE VI.—Breaking down old adhesions of knee-joint in chronic arthritis.

In preference to morphine for the alleviation of pain in the lower half of the body, and even where it was contra-indicated, I have used spinal anesthesia in medical cases of emergency with instant relief; having given, thus far, six doses to various cases. Before attempting spinal anesthesia, as it is not a simple process, those unacquainted with spinal puncture should practise on the cadaver.

I would suggest that the process should be extended to cases of tubercular meningitis and cerebro-spinal fevers, in which it could do no harm, but might do good. In properly selected cases and in suitable hands spinal anesthesia is a commendable procedure.

In addition to its value in spinal anesthesia, chloretone is of value in general anesthesia as a means of preventing the distressing nausea which follows either chloroform or ether.

CASE.—W. E., aet 39, was an alcoholic subject, with an inguinal hernia, which had recurred after operation, on which first occasion ether was administered, with great post-operative suffering from vomiting. The patient was subsequently delirious and was six weeks in bed. Two hours before the second operation 15 grains of chloretone were administered, by the mouth. While the patient was going under the anesthetic, the usual stage of excitement in alcoholics occurred; but there was no post-anesthetic sickness, and no delirium followed, the patient stating that his head was clear.

ABDOMINAL SECTION FOR RECTAL PROLAPSE OF MANY YEARS' STANDING.*

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Patient was a male in good health, white, 43 years, old, admitted to Charity Hospital July 20, 1901; had suffered from rectal prolapse as long as he could remember, the bowel coming down at every evacuation. It included all coats of the rectum. In the squatting posture he could reproduce the tumor at will, and, what is more remarkable, he could also, by negative pressure (by suction, as it were) again draw it completely back. The gut was much thickened and irritated from its frequent descent, and was a source of great annoyance and discomfort to him.

For relief there was choice of two methods: excision (amputation) or ventral suspension.

An admirable method of carrying out the first is that described by George Ryerson Fowler, in Medical News, December 8, 1900, where he relates a successful operation in a very aggravated case. The procedure possesses some decided advantages over other methods and presents some unique features.

I decided, however, to adopt the second plan, being, perhaps, influenced somewhat by the observation of my patient's ability to draw it up by voluntary effort. I carried out essentially the plan advocated by Mathews, of Louisville, as reported in the Journal of the American Medical Association, of March 30, 1901.

For various reasons, I adopted the suggestion made by Fowler and operated under analgesia by spinal cocainization, ten minims of a 2 per .cent solution of cocaine hydrochlorate being injected thru the fourth lumbar space. The operation was completed with entire absence of pain, the anesthesia persisting more than one hour.

The technic followed was McBurney's gridiron incision, the muscular layers being separated in the direction of their fibres rather than cut. The sigmoid having been identified and brought out, a silkworm loop was put in and the bowel dropt. The patient was then told to force out the prolapse by a voluntary effort. This he easily did, the rectal sphincter being well relaxt by the intraspinal injection of cocaine. The silkworm loop was now caught up, the sigmoid again brought out, and the bowel forcibly drawn upon until an assistant, watching the anus, informed me that the prolapse had disappeared in the pelvis. The needle carrying the kangaroo tendon was passt under the anterior longitudinal band, that is, between the sigmoid surface and the band, and brought out; thence carried obliquely across, it was again passt under the band in the same manner. There were now two free ends of the suture on opposite sides of the band. Each end was threaded on a needle and passt straight thru the peritoneum, transversalis and internal oblique muscles. The sigmoid was now suspended by the kangaroo tendon, and it was easily drawn up into proper contact with the wall by pulling on the two ends of the suture, assisted by a finger in the peritoneal cavity gently holding up the sigmoid. The sigmoid was fixt in place by the tying of the suture. This brought together, at the same time, the separated fibres of the internal oblique and transversalis muscles, so that one more suture external to this closed these layers very accurately.

It will be observed that when the two ends of the kangaroo tendon were tied on the external surface of the internal oblique, it made, with the part suspending the sigmoid, a complete figure of eight. The aponeurosis of the external oblique was brought

*Read before the Southern Surgical and Gynecological Association.

together by a continuous kangaroo tendon suture. The skin was united by uninterrupted silkworm gut sutures.

On the conclusion of the operation one-quarter grain of morphine sulphate was given hypodermically and subsequently ten drops of laudanum by mouth ever four hours to inhibit peristalsis. The foot of the bed was kept elevated.

On the twelfth day the sutures were removed. One week later the patient was discharged well, defecation being normal and entirely painless. I have not been able to get any report from him since that date.

I think the internal oblique and transversalis a better point of traction than the rectus, as utilized by Noble of Philadelphia. The whole procedure is extremely simple, very striking, and the results effective. I believe analgesia, without loss of consciousness, of decided advantage, as demonstrated in this case.

SIX CESARIAN SECTIONS—WITH DEATH OF ONE WOMAN AND ONE CHILD (ONE DEATH BEFORE DELIVERY.)*

BY EDWARD P. DAVIS, A. M., M. D., PHILADELPHIA, PA.
Professor of Obstetrics in Jefferson Medical College.

The following six cases occurred in one winter's work:

CASE I. Mulatto girl of 22 years, second pregnancy—first child still-born at difficult delivery; was admitted to the Maternity in full labor; first position of fetus, vertex presentation; pelvic measurements: Anterior superior spines 25 centimeters, crests 24½; trochanters 30, right diagonal 20, left diagonal 20, external conjugate 18 and internal conjugate 8. She was told that natural childbirth would be impossible, and requested operation such that no further pregnancy would occur—hence celiohysterectomy was performed. The only peculiar feature of the operation was that it was necessary to close the distended cervix by several sutures. No drainage was provided. The patient made an uninterrupted recovery, except for a temperature of 101 for a few days and a muco-purulent discharge from the vagina. The child, a girl, weighing 6 pounds 9 ounces, also did well.

Necrosis of the cervical stump was expected in this case (it even occurs in some instances following hysterectomy for fibroids), hence in placing the sutures care was taken to completely bury them and to close the peritoneum over the sutures.

CASE II. Negress, 23 years old, dwarf of diminutive stature, had borne one child, after very long labor, forceps delivery. She was more than nine months pregnant when admitted to the Maternity, fetus in first position, head above the pelvic brim. Pelvic measurements: Anterior superior spines 24 centimeters, crests 24½, trochanters 28, right diagonal 18, left diagonal 19, external conjugate 16, internal conjugate 7. Spontaneous labor came on a few days after admission and soon developt strong uterine contractions, rupturing the membranes when the cervix was one-third dilated; contractions finally became so severe as to threaten rupture of the uterus. She was delivered by celiohysterectomy, in accordance with her desire. She did well except for extreme distension of the abdomen from gas in the intestines. The child showed the effect of birth-pressure (sluggish respiration and excessive compression of the cranium), but also did well.

CASE III. White multipara, 35 years of age, had been in labor for some hours before admission to the Maternity, an attempt having been made to deliver by forceps. She was in extreme shock—from loss of blood, prolonged anesthesia and severe manipulation—her radial pulse being almost imperceptible. Examination showed pelvis too narrow for delivery, the head being wedged into the brim of the pelvis. She was stimulated freely and craniotomy on the dead child performed. Altho the skull was thoroly emptied, delivery was still found to be impossible. Therefore the abdomen was opened and a Porro operation performed. The cervical stump was left outside of the peritoneum, freely powdered with iodoform and boric acid and covered with sterile gauze. Two quarts of saline solution were given by intravenous injection. She rallied slowly, the stump of cervix slought away, the internal surface being discharged by necrosis; but, much to our surprise, she recovered and left the hospital in good condition.

The question arises: Would not removal of the entire uterus unopened have been better than supravaginal amputation? This operation may be done quickly and is justifiable in all cases when the fetus is dead, the uterus infected and impossibility by delivery thru the vagina evident. This is one of the few cases which I have seen in which the Porro operation seemed indicated.

CASE IV. White primipara, 36 years of age, of tuberculous history (hip-joint disease, both sides, at 10th year), with rachitic chest and pelvis: external conjugate 17 centimeters, internal conjugate 7½. Fetus in first position, head at pelvic brim. Patient and husband both requested that further childbearing be made impossible. When spontaneous labor came on and the os was well dilated celiohysterectomy was performed—difficulty being experienced in putting the patient in convenient posture on account of the contractions from the old coxitis. Mother and child made complete and uncomplicated recovery.

Several small intramural fibroids were found.

This patient formed no exception to my experience in these cases: She nurst the child quite as well as if the uterus had not been removed.

CASE V. White primipara, 27 years old, between seven and eight months pregnant. Four weeks before the feet had swelled and she was passing three pints of urine daily. On examination she was found to have general dropsy; second sound of heart greatly accentuated; increast arterial tension; sight dim; tongue red and swollen. She was evidently highly toxemic and in imminent danger of eclampsia. The urine showed hyaline and granular casts, with granular debris and albument in abundance. The day following admission to the Presbyterian Hospital she was so much worse that she was given chloroform and labor induced by introduction of sounds. Eclampsia came on in a few hours and, as her condition was grave, we decided to empty the uterus as speedily as possible. She was again anesthetized and the fetus removed thru abdominal incision. On section her tissues oozed freely, the blood being of a dark, vivid red color. The uterus was packt with gauze and cervical drainage establisht. Intravenous saline injection was made during anesthesia. She reacted well, but had one convulsion as she recovered from the ether narcosis. She died in coma within a few hours—the child living about three hours longer.

A large proportion of women subjected to Cesarian section for eclampsia die, Hillman's statistics showing 40 cases with 21 deaths; and 18 of the children also died. Seven women had convulsions after delivery.

My own experience embraces this and one other case: A patient with such a contracted pelvis that craniotomy was not feasible; she was brought into this hospital in convulsions; section was performed upon a woman apparently dying; child was dead; the mother improved, but died three days later of double nephritis.

In connection with this subject the question arises: Is it best to always empty the uterus at the earliest possible moment? My answer is in the negative. Of first importance in the treatment of eclampsia is control of the convulsions; next the stimulation of the patients excretory processes. As soon as this is done, if the abdomen is tense and the cervix hard and unyielding, Cesarian section must be considered. Success or failure will depend on the degree to which the patient has been poisoned by the toxins within her body. In some cases the patient is beyond all help when first seen; in others, even desperate, recovery follows. There is especial danger from hemorrhage—the tendency to bleed being great in all toxemic conditions. In the case here reported this tendency to bleed was overcome by the packing.

CASE VI. White primipara, of good health, but not of robust physique. She excreted badly during pregnancy and was not well nourisht. In her later months of gestation her digestion and excretion became worse and she developt mild melancholia. Her pelvis was slightly contracted, but the fetus very large. She was advised to enter hospital on account of possible complications, but declined. Labor came on spontaneously, but with ineffectual pains, breech presenting. On account of the development of the child, the lack of expulsive force, the unfavorable position, the contracted pelvis and the inelastic pelvic floor, it was decided to deliver by abdominal section. A large child was removed, living. As the uterus reacted sluggishly, it was packt with iodoform gauze, the ends protruding into vagina. The womb was closed with silk, the peritoneum over it with catgut. The patient reacted well. Packing was removed on second day.

She made a gradual recovery from her mental trouble and both she and the child have been in excellent condition since.

A great disadvantage was operating in a private house; but with a portable sterilizer, previously sterilized dressings, a trained nurse and skilled assistants, these difficulties were overcome. Without such facilities no one should attempt obstetric surgery of this magnitude.

*Synopsis of report to College of Physicians of Philadelphia.

International Journal of Surgery says: An invagination of the bowel low down may be mistaken for a prolapsus. The latter is distinguisht from the former by the fact that in invagination there is a distinct groove or sulcus between the enclosed and enclosing portion, which may be reacht by a finger or sound; this does not exist in prolapsus.

SOME FACTS CONCERNING HEAD INJURIES.*

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The phenomena which immediately follow head injury are interesting chiefly on account of their diagnostic value in revealing the nature and extent of the injury and are of some importance in determining the questions of prognosis and treatment. It must be considered, however, that in many cases the early manifestations may not reveal the seriousness of the lesion fully and may be misleading. On the other hand, the first symptoms may indicate a more grave condition than the subsequent history will confirm.

The early symptom most generally observed in serious head injuries is a state of unconsciousness. What this may signify cannot always easily be determined from the symptoms alone. The question of importance in this connection (and one which must be considered at an early moment) is, whether unconsciousness is from hemorrhage or from concussion or contusion of the brain. The manner in which the injury is received is of the utmost importance in determining this question: (1) whether the patient has fallen from a height, striking on his head in such a manner as to produce a serious lesion at the base of the brain; or (2) if a direct blow has been received on the convex surface of the skull and of such a character as to produce a lesion in the cortical or subcortical brain substance.

Having determined with reasonable certainty that the lesion is in the convexity of the brain, the necessity of ascertaining whether or not a considerable hemorrhage has occurred is very great, as upon this must depend the treatment to be employed. The nature of the blow and its location may be of some importance, but can not always be relied upon. For instance, it may be known that a man received a blow on his head, but when he comes under professional observation, the marks of it may have been so completely obliterated, or may not have existed at all, or may be so general in character, that examination does not reveal where the force of the blow was applied; and unless there are some focal symptoms the surgeon may be in serious doubt as to what has really transpired within the cranial cavity; and he may patiently but inconsiderately wait for consciousness to return while an increasing hemorrhage is going on.

The unconscious state in itself will not reveal whether it is due to concussion or hemorrhage (except the hemorrhage from a cerebral artery). The hemorrhage due to trauma is generally meningeal and does not produce the coma of a cerebral hemorrhage. But, while the general manifestations of unconsciousness do not indicate the cause, the manner of approach is in many cases significant. The appearance of the unconscious state some minutes or an hour or two after the accident or the return of consciousness after a primary loss, followed shortly by a reappearance of coma, are almost alone diagnostic of meningeal hemorrhage. If fracture with depression be the cause of unconsciousness the physical condition will reveal the fact; and so if the marks of violence are found over the region of the middle meningeal artery, the fact should be very helpful in diagnosis. If then the first symptoms of intracranial injury are determined to be from the rupture of a meningeal artery, particularly the middle meningeal, the immediate effects of the injury may be regarded as serious until a prompt surgical procedure is employed.

When the brain itself is badly damaged the immediate symptoms may or may not indicate it. The seriousness of injury to the brain will depend chiefly upon the part of the brain involved, the extent of penetration of cerebral tissue, the amount of infection and the character of treatment employed. Gunshot wounds of course give the most dangerous injury, but in private practice many of them need not necessarily prove fatal if proper attention be given them very early; but, on the other hand, neglectful care at an early moment is liable to be followed by brain infection—especially if the doctor fails to remove fragments of skull and other foreign bodies.

It has often been noted that trauma to the posterior region of the brain is attended with less fortunate termination, both as to immediate and remote results, particularly the latter, than when the injury is limited to the midregion or anteriorly. It has been observed by all writers that injuries to the base of the brain have been more serious than similar injuries to superior portions.

So the questions of prognosis and treatment must depend upon the location as well as extent of brain injury.

*Abstract of paper read before the American Medical Association.

REMOTE EFFECTS.

Many patients who present no very serious symptoms at time of injury later on develop exceedingly grave ones; many of them have no indication for operation immediately after the accident; others may be badly shockt, but the general practitioner believes they will recover if left alone, and yet the experienced surgeon could see indications which point to serious results in the future, altho present recovery may be confidently expected.

These cases may be groupt into two classes: (1) Those involving pressure lesions, manifesting focal symptoms or irritation lesions, expressing themselves in Jacksonian epilepsy; (2) those involving nutrition lesions, resulting in more or less extensive sclerosis, manifested by mental symptoms of a more or less markt degree.

The importance of considering with care all cases of injury to the head which may produce lesions in any degree amenable to surgical treatment is very great. Experience has abundantly shown that if a course of waiting for future results is permitted, until the sequelae are actually developt, an operation is then usually too late to cure what might have been prevented.

In the first group may be included cases of fracture with depression and without symptoms and cases suspicious of depression, or hemorrhage with focal symptoms. Fracture with depression and without symptoms will, from the nature of things, exercise a localized pressure upon the brain surface, and particularly if a rough edge or spicula of bone bears upon the dura, and lead in many cases to irritation and local nutritive changes in dura, and pia-arachnoid with adhesions to cortex and even connective-tissue formations in the cortex itself. In other cases where the examination shows no apparent fracture or depression, focal symptoms appear proving conclusively that a pressure-lesion exists in the cortex, which in time results in organic changes in the brain, giving rise to unfortunate sequelae; in these when the results do appear the effect of a late operation is always problematic. From my own experience I can not see what excuse can be offered for a neglect to restore, as far as may be, normal conditions by an operation at time of accident. It is no doubt true that in some instances no serious results follow from the class of injuries above referred to, but every surgeon has seen so many individuals whose usefulness have been seriously impaired by secondary brain changes that operative procedures should not be withheld when a doubt exists as to the future of the injured person.

In a small percentage the traumatic aseptic focus in the brain becomes the point of departure of lesions leading to a slow process of interstital sclerosis more or less extended. These local disturbances of nutrition are closely connected in many of these cases with a permanent pressure-irritation easily within the reach of the surgeon at time of injury.

In my own experience neither epilepsy nor insanity has followed when early operative treatment has been instituted—in many cases where such a termination might have been anticipated under the "do-nothing" plan of treatment. On the other hand, I have opened the skull many times for epilepsy or mental derangement and found localized lesions which certainly could have been avoided by timely surgical interference.

The second group contains a class of cases not at all uncommon; particularly serious in regard to the future course because they involve wide-spread, minute lesions, which remotely affect the nutrition of the brain and bring about serious changes in the delicate mechanism of that organ. Thus a diffuse sclerosis of the cerebral tissue is quite beyond the reach of the surgeon when once establisht; but easy of prevention by proper treatment at time of accident.

I have records of a number of patients—mostly trainmen who have fallen from rapidly moving trains and sustained head injuries from which they were unconscious for several days, then mildly delirious for some days or even weeks, but finally recovered their mental balance sufficiently to return to work; after a few months they were discharged for developing insanity. The pathological condition I presume to be chronic meningitis in some instances; in others a diffuse connective-tissue proliferation.

Scars of the brain may result in (1) permanent scar-contractions, (2) cystoid degeneration, (3) other changes giving rise to late symptoms. In a limited number of instances surgical treatment may give some improvement.

As a result of a considerable experience, especially in railway surgery, I beg to offer the following:

CONCLUSIONS:

(1.) Violence of no great intensity when applied to a limited area of skull may cause a fracture with only momentary dis-

placement with a rupture of meningeal artery, or a rupture of an artery without fracture.

(2. A localizing injury which may lead to a fracture without displacement and hemorrhage does not as a rule cause a serious permanent brain lesion if early and judicious surgical treatment is employed.

(3.) A fracture may occur without apparent displacement, yet a real localized pressure on the brain exists which may cause irritative changes involving a more or less extended sclerosis and remote secondary results, as epilepsy or mental impairment.

(4.) A blow may be received on the head which may produce a more or less extensive laceration of the scalp which in itself is not serious. But the fall from a height or from a rapidly moving train may produce more or less extensive contusion or lacerafects.

(5.) A fall from a height or moving train may, without a fracture, cause directly or indirectly, a contusion or laceration of brain tissue or so disturb the cerebrospinal fluid as to primarily bring about such changes and cause immediate results or secondary serious remote effects by inducing degeneration and final interstitial changes resulting in insanity.

(6.) An injury may be of such a character as to produce a localized wound of the brain that may heal with the production of scar tissue which may extend, may or may not undergo cystoid or other degeneration with serious remote effects.

(7.) In the absence of localizing or other definite symptoms to indicate the nature of the lesion, the character of the accident and the manner in which the force is applied is of great value in reaching a conclusion as to the probable nature of injury to the brain.

SURGICAL NOTES.

In connection with the article of Dr. Eve on spina bifida, which appears in this journal this month, is a report by Katzenstein (Philadelphia Medical Journal, November 23, 1901) giving details of two cases of concealed spina bifida recently observed by him. One was in a girl of three, with lordosis, right-sided flat-foot, paralysis, and atrophy of the right leg. In the other case, a boy of 17, there were ulcers of the left foot and buttocks, incontinence of urine and feces, left dorsal scoliosis, long hair over the spina bifida, and the left leg much shorter than the right. In this case, (the third case of concealed spina bifida ever successfully operated upon), the tissue connecting the skin and the spinal column was removed. Katzenstein describes the condition as a slit in one or more vertebrae, the skin over it being normal, not prominent. It follows either deficient separation of the medullary canal from the ectoderm, or a meningocele. Its characteristics are a connection between the skin and the spinal column, an opening in the vertebral canal, and a muscle-tumor about the vertebral canal. The spinal column may be normal or it may show changes due to the opening itself, to traction or to pressure. These may cause secondary disturbances in utero, in childhood, or at puberty. When uncomplicated, the prognosis of concealed spina bifida is excellent. After trophic disturbances appear, there is danger of sepsis. When secondary changes have occurrred in utero, nothing can be done; when seen in childhood, the posterior uniting membrane should be divided. When met at puberty, the tissue between the spinal column and the skin must be extirpated.

A late report on section of the cervical sympathetic for epilepsy is that of Braund who (Philadelphia Medical Journal), reports nine such operations performed by him. In all but one case, the operation was performed upon both sides of the neck. The upper ganglion, the middle ganglion, and the nerve as high as the inferior thyroid artery were removed. The technic of the operation has been described in full in this journal. One man died of pneumonia two days after his second operation; another died during an epileptic attack, after the operation wound had healed. Three patients have had many light epileptic attacks since operation. Three of the remaining four patients, all of whom were also insane, seem to have had less frequent attacks, and to be less clouded mentally than they were before operation. Tho the operation is not dangerous, he thinks there are not yet enough observations reported to show favorable results from it.

Dr. S. G. Gant, Professor of Diseases of the Rectum in the New York Post-Graduate Medical School, says that prolapsus ani in children will occassionally get better as the child grows older. As a rule, the reverse is the case. Many, however, can be cured without an operation by palliative measures. The essential feature of the palliative treatment consists in keeping the child in the recumbent posture during defecation, thus counteracting the force of the abdominal muscles. Frequent enemas of cold astringent solutions are valuable, such as alum, zinc, lead, infusions of black oak bark, etc. After each action a firm pad should be placed over the anus and the buttocks should be strapt together by adhesive strips. Pre-existing diarrhea, constipation or cough must be relieved, otherwise the above treatment will fail. If the remedies named do not cure, operation should be resorted to. The operation known as linear cauterization with the Paquelin cautery is to be preferred. It consists in making several parallel lines about half inch apart, beginning two inches above the anus, carrying them downward thru the mucous membrane and out at the anus. After the cauterization has been made the rectal walls must be kept separated with gauze, well anointed with vaseline to prevent sticking to the burned surface at time of withdrawal. The treatment consists in occasional irrigation, rest in bed. The best effects of this operation are not seen until several months thereafter, when the scars have formed and contracted.

Hawkins says (Journal of American Medical Association) that syphilitic disease of the rectum is not uncommon. The most frequent specific manifestations in the rectal region are condylomas, which are often called piles, but, if uncomplicated by ulceration, usually rapidly disappear when treated by internal medication and the local use of calomel as a dusting powder, with daily ablutions with a weak solution of mercuric chlorid. Chancres are comparatively rare. Ulceration may occur during the secondary stage, but most frequently during the tertiary, and is due to gummatous deposits and infiltration of the submucous tissue. Gummas have been known to obstruct the bowels, but they usually disappear rapidly under the aggressive use of iodide. Infiltration may produce a fibrous condition with great contraction, and stricture is sure to follow syphilitic ulcer. If this occurs in the secondary stage the use of mercury is indicated. For the third the iodide or mixt treatment is best, but it must be remembered that at times the third stage seems to anticipate itself and then a mixt treatment is early required. It is well not to continue the internal administration of mercury when ulcerative papillitis of the rectal mucosa is suspected. Then one should use inunctions so as to rapidly produce the desired effect, and at the same time keep the bowel clean with semi-daily enemas of creolin solution. Codein may be given for the pain or tenesmus. Hawkins finds it advisable to use sulphocarbolate of zinc 20 gr. to quart of warm water in an enema once or twice daily. In some cases divulsion of the sphincter is necessary to secure proper drainage and the relief of pain. When syphilitic stricture exists it is advisable, he thinks, to use posterior linear proctotomy with the subsequent use of bougies, but, he would give a very guarded prognosis, especially as regards the cessation of discharge. Ulceration is apt to persist and iodine do little good. Colostomy is all that remains for many of the cases, and it should be recommended as no worse to take care of than the disease. It allows the diseased surface to be kept clean and free from irritation.

Wounds of the venous sinuses of the brain sometimes occur in the course of operations upon the skull—even for fracture; and unless the operator be familiar with the best methods of checking the bleeding death will occur from either hemorrhage or acute septic phlebitis. Wharton, in Annals of Surgery, analyzing reports of 70 cases (5 in his own experience), comes to these conclusions: (1) Wounds of the venous sinues of the brain should be classt as exceedingly dangerous injuries, being followed by high mortality from external or intracranial hemorrhage or septic infection; (2) they are specially liable to infection, resulting in septic thrombus and pyemia, therefore the greatest care should be taken to render them aseptic and to maintain them in that condition; (3) the most satisfactory and generally available method of treatment consists in controlling the bleeding by aseptic gauze packing; (4) ligation of the venous sinuses presents definite dangers in itself, is only available in certain wounds where a free exposure of the injured sinus is possible, and cannot be employed with advantage in ordinary accidental wounds of the sinuses; (5) the application of a lateral ligature to a wound of a sinus is less difficult and dangerous than ligation of the sinus, but is applicable only to small wounds; (6) suture of sinus wounds is a valuable procedure in a certain class of cases, namely, small wounds which can be freely exposed; (7) forceps pressure is also a ready method of controlling hemorrhage from wounds of the sinuses, but possesses no distinct advantage over some of the other methods, and its employment is not free from danger.

According to Walton (Journal of American Medical Association), there are no symptoms which establish (otherwise than thru their persistence) irremediable crush of the cord. While total relaxt paralysis, anesthesia of abrupt demarcation, total loss of reflexes, retention, priapism and tympanites, if persistent, point

to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree at least of restoration of function. The prognosis without operation is grave. While the results of operation are not brilliant, they are sufficiently encouraging to warrant surgeons in making the practice more general. In most cases it will be wise to operate within a few days of the injury, but delay of some hours is advisable, partly on account of shock and partly to eliminate the diagnosis of simple distortion. There is no infallible guide to the extent of the lesion. The operation at the worst does not materially endanger life nor affect unfavorably the course of the case, and may at least reveal the lesion and lessen the pain; it may sometimes save a patient from death or from hopeless invalidism of most distressing character. Instead of selecting the occasional case for operation, we should rather select the occasional case in which it is contra-indicated (the patient with great displacement of vertebrae, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock). The dura should be opened freely; it need not be sutured; drainage is not necessary.

Loeffler suggests that possibly the increase in cancer in temperate countries may be due to the extinction of malaria, and calls attention to the extreme rarity of cancer in the tropical, that is, the malarial-infested countries. He urges physicians in the tropics to collect data in this line, and cites Pagel, who states that he cannot remember a single case of cancer in ten years of practice in Northern Borneo. Loeffler concludes with the assertion that physicians would be justified in experimenting on an extensive scale to cure carcinoma by the inoculation of malaria.

The treatment of gastrectasis by operation is, in suitable cases, advised by Cordier, of Kansas City. He is especially favorable to gastro-jejunostomy in dilatation from malignant disease of the pylorus, because if the cancerous tissue be removed, the trouble returns quickly, and always kills. Pylorectomy is attended by a high mortality, and is not a justifiable surgical procedure in advanced carcinoma of the pylorus. Gastrectasis, due to malignant closure of pylorus is, therefore, he believes, best treated by a gastro-jejunostomy. The operation as advised by Woelfler or Van Hacker best meets the indications. It is not necessary to twist the bowel, in making the anastomosis, to prevent the bile from entering the stomach. The anastomotic opening in the stomach should be at the most dependent point of the dilated organ. The operation is attended by a low mortality. He concludes that in all cases in which markt dilatation of the stomach exists, accompanied by emaciation, pain and invalidity, the operation of gastro-jejunostomy should be performed. Relief from pain, due to the effort of the stomach to relieve itself, follows this procedure at once. The patient gains rapidly in weight, and, if no malignant disease be present, his former good health is restored.

In children, says International Journal of Surgery, in the differential diagnosis between fractures and dislocations, it is always well to remember that the latter are very rare in childhood because the muscular power of children is comparatively small, because of the presence of epiphyseal cartilages, and because the soft parts about the joints are so soft. They are also uncommon in the old, because here again the muscular power is diminisht and the bones are more brittle.

Dr. Chas. W. Allen has an article on the treatment of skin cancer, in New York Medical Journal, November 9, 1901, in which he reaches the following conclusions: (1) Cutaneous cancer can be traced in almost all instances to preceding local irritation. (2) While other causes may be operative, it is not unreasonable to assume that infection may be one source of irritation occasioning cancer. (3) Benign epitheliomatous proliferations of infectious nature transmitted by contagion lend weight to this view. (4) Cancer is curable, but the disease may be allowed to progress until the patient no longer is. (5) No treatment short of the most radical measures should be tolerated. (6) In the application of caustic pastes and subsequent cauterizing dressings we possess a method not alone radical, but one which is in many conditions preferable to the knife. (7) The earlier treatment can be applied, the less likelihood is there of recurrence or of subsequent outbreaks in other parts due to cancerous tissue which has been left behind. (8) The x-ray as a means of treatment bids fair to prove quite as effective as caustic applications.

From a large hospital experience Meisenbach of St. Louis finds that the aged bear capital operations very well and that age per se is no contra-indication to operation, other things being equal. The aged, under proper conditions, should be given the benefit of the surgeon's skill in surgical work, but it must be borne in mind that the aged do not bear well the loss of heat and blood.

A kidney-stone lodged in the ureter has been located with the X-ray by Keen of Philadelphia, who records the case in the Journal of the American Medical Association, August 31, 1901. The patient was a boy aged 10 years. He suffered his first paroxysm of pain when 2 years old. The skiagraph showed a ureteral calculus one-half the size of the last joint of the little finger in the left ureter, which was thought to be at the pelvic brim, but which was found a little below this level at operation. An oblique incision was made above and parallel with Poupart's ligament, and the peritoneum pusht back. Considerable difficulty was encountered in isolating the ureter. A hard mass, in which the ureter was apparently lost, was found just above the bladder. This was incised and the stone removed. It had evidently ulcerated thru the posterior wall of the ureter and lay in a sack partly intra and partly extraureteral. The incision in the ureter was closed by a continuous cat-gut suture, and a thin gauze drain was placed against it. Recovery was uneventful, no leakage taking place.

International Journal of Surgery says it is well to remember that in bullet wounds pain is not usually a very markt symptom. If the wound is received during a period of excitement, it may give hardly enough pain to cause the subject to know he has been wounded. If there is any pain, it is apt to last for a short time only. The absence of suffering may mislead the surgeon into a failure to recognize the gravity of the injury.

According to International Journal of Surgery, the most effective treatment for erysipelas of the face consists in the constant application of ichthyol dressing. But however limited the disease, and however well the patient appears to be doing, the surgeon must be constantly on the watch for the appearance of cerebral complications, whose onset may be very rapid and the termination of which is often fatal. Hence always forbear to give a good prognosis in these cases until the patient has practically recovered.

GYNECOLOGICAL NOTES.

At the late meeting of the Southern Surgical and Gynecological Society Dr. H. Tuholske, Professor of Surgery in Washington University, St. Louis, reported one of the most extraordinary cases of extra-uterine pregnancy on record. Tubal impregnation (ampullar) occurred upon the right side; tubal abortion followed, with extrusion of both fetus and its enveloping structures. The flow of blood and recumbent posture which followed rupture of the tube carried fetus and sac to the diaphragm. Implantation in the peritoneum covering the diaphragm resulted, at a point between the right lobe of the liver and the upper end of the kidney. Establishment of placental connections followed, allowing the development of the fetus. As the child grew the liver was pusht toward the left and turned upon its axis with the coronary ligament as a fixt point—the right margin of the liver thus becoming the left! On abdominal section a fully developt fetus was removed from this location. The placenta had been formed by efficient transformation of the peritoneum and the adjacent liver tissue.

The editor of the International Journal of Surgery says that the pus of gonorrheal vaginitis is always alkaline. If for any reason a microscopical examination cannot be made, the use of a strip of litmus paper will, therefore, give a very accurate decision.

In an article before the Southern Surgical and Gynecological Association, Dr. E. S. Lewis, of New Orleans, read a paper in which he maintains that lacerations of the cervix are productive of more functional and organic disturbances than has heretofore been supposed. The fascination of abdominal surgery and brilliant results achieved and the increasing scope of this work has, in a measure, diverted attention from these minor injuries which, when neglected, prove most serious, and has an important bearing upon the health, happiness and life of women. The author's intention, he declared, is simply to awaken attention to the importance of the topic which has, in a measure, been lost sight of, and to emphasize what has been so emphatically and graphically described by Emmet. There is no question as to the course to be pursued by the accoucheur in

lacerations of the perineum, altho of less significance than tears of the cervix as to final results. In moderately recent cases the classical Emmet operation can not be improved upon; yet, in certain long-standing cases, where the cervix has become thickened enormously from hyperplasia, the Emmet operation will fail to afford relief. In such cases he has used the Schroeder operation or a modification of it with gratifying results.

The use of rubber gloves is growing in favor in gynecological as well as obstetrical work, except for the delicate operations sometimes necessary. Then, as Dr. A. H. Goelet, some time Professor of Gynecology in the New York Clinical School of Medicine, points out, there is a great objection to the use of rubber gloves. They render manipulations more awkward and the operator is necessarily slower. They are always either sticky or slippery. To shorten the time consumed in operating is often as important as perfect sterilization of the hands. If gloves are considered necessary he thinks it more important that they should be worn by the nurse and assistants, as they are less apt to be as thoro in their preparation as the operator.

Pryor, of New York, says that statistics show that the normal mortality of puerperal sepsis is 5 per cent, while those cases where curettage has been made (and the streptococcus found as the cause of the fever) give the frightful mortality of 22 per cent. He has therefore adopted and practist a method of treatment by irrigation and thoro drainage which he applies to all cases in which he finds the streptococcus present and this has given him and others who have tried it no mortality excepting where curettage had been done before coming into his hands; in these there was 33 per cent mortality. He considers that curettage of the septic puerperal uterus is a mischievous and exceedingly dangerous procedure when streptococci are present.

American Journal of Obstetrics of February, 1902, contains an interesting account of three Cesarian sections by Dr. Stricker Coles, Demonstrator of Obstetrics in Jefferson Medical College, Philadelphia. One was complicated by pyosalpinx; yet a living child and living mother resulted from the abdominal section. All the women and children survived. Dr. Coles thinks that this operation will soon be done much more frequently than in the past, especially in hospital work, where facilities for early, speedy and aseptic operation are at hand; and that results will be far more satisfactory than from symphyseotomy and craniotomy.

Butlin in a recent article most heartily condemns removal of the ovaries in the hope of curing cancer of the breast. He believes in local operation solely. In many cases it may be successful, and if the disease recurs or continues and kills the patient it is likely to do so in some distant organ with much less pain and suffering. Moreover, if it recurs in situ in the patient in the form of nodules she generally suffers far less than if no operation had been performed. He continues "We are askt to replace the operation, known to give a large percentage of cures, by removal of the ovaries and the administration of thyroid! We can only reply that so far as known there is no single case of cure by means of oophorectomy. Even if after operation and oophorectomy the disease returns it is in no way improved by the latter operation." He further says that if we are to come to a definite opinion as to whether oophorectomy can cure any woman of cancer it must be by applying the practice in say twenty or twenty-five cases where it exists to a very mild extent without any obvious extension to the lymph glands. If a surgeon can find that number of patients willling to take the risk he does not blame him for performing oophorectomy, but he would not have the courage or faith himself to do so.

Of fibroid tumors of the uterus, Dr. Chas. P. Noble, Surgeon to the Kensington Hospital for Women, Philadelphia, says our opinions must show change from the traditional teaching. We have heretofore been told that uterine fibromyomata, while of frequent occurrence, only exceptionally produce symptoms; that after the menopause they tend to undergo a spontaneous cure; and that only in the rarest instances do they cause death. This teaching, while given the sanction of great teachers, has never been universally accepted. It has been combated from time to time by those who have seen grave conditions arising from the presence of fibroid tumors. Now, however, we are able to contrast the mortality of fibroid tumors, including that of their degenerations and complications, with the mortality of operation—upward of 33½ per cent without surgical treatment as compared with less than 10 per cent following removal; also the morbidity incident to the history of fibroid tumors as compared to that which follows operation, in which the comparison is very much in favor of operation. From all the facts presented the conclusion is inevitable that the proper treatment of fibroid tumors of the uterus is their early removal. Early operation not only greatly lessens the mortality, but, what is perhaps of more importance, it saves the long period of invalidism which is otherwise unavoidable. Believing that the best treatment of fibroid tumors in general is their early removal, the question remains whether there are no exceptions to this rule. The best answer to this is that each case must be decided upon its merits. It is Noble's individual experience that small multinodular subperitoneal fibroids in women 40 years of age or more are the least apt to grow and to cause serious symptoms. Conversely, submucous and intramural fibroids in younger women are the most apt to develop and to cause serious trouble. It has been his experience to meet with but few fibroids which were not producing symptoms, and it is therefore his belief that the percentage of cases is small in which operation is not more advisable than expectancy.

In Cohen's "System of Physiologic Therapeutics" Dr. Franklin H. Martin, Professor of Gynecology in Chicago Post-Graduate Medical School, says the causes of destructive dysmenorrhea that yield to electric treatment are: (a) Nondevelopment of the uterus; (b) flexions; (c) strictures. Nondevelopment of the uterus is frequently the cause of dysmenorrhea in young women. The cause is usually traced to overwork, either mental or physical, at the time of puberty. Mental overwork is usually found among girls of the better class, of ambitious disposition, who are endeavoring to break records at school. The body is neglected; sleep and exercise are banisht; all the organs are stagnant, while the brain and nervous centers are being over-cultivated. This acts as a powerful derivative to all the organs of the body outside of the skull, and especially to the organs of reproduction, which have never been called into exercise. On the other hand, there are the same results in girls who are overworkt physically. Excessive muscular work amid poor hygienic surroundings, when the blood is thin from improper and inadequate food, and vitiated from imperfect oxygenation, requires that the poor and scanty blood that circulates thru these girls should be exhausted in its effort to supply the wasted muscles, leaving little for such organs as those of reproduction. Thus there is the same derivative effect and the same painful result. Local examination shows the uterus to be small, and of a shape varying markedly from the normal. The cervix is flabby, soft, without muscular stiffening, and pale in color. The body of the uterus is also small and soft, and flext forward. Occasionally the uterus is flext posteriorly, and rarely it is not flext at all. The uterus must be unflext, and the organ must be developt muscularly. The form of electricity for such a case should be either the Faradaic current or the sinusoidal current, with slow interruptions. The whole influence of the current should be concentrated in the uterus, and for this purpose a dipolar intrauterine electrode should be employed. In order that the uterus should first be straightened as a preliminary to treatment, and retained in its normal straightened condition while the influence of the electricity is being exerted, it is well to employ either an electrode that is elastic, so that after its introduction it will constantly exert an influence in the right direction, or one that is of sufficient pliability to permit it to be shaped properly before introduction. It should be carefully introduced well beyond the flexure into the body of the bent uterus, in such a position that one pole will exert its influence on the body and the other on the neck, thus encompassing the whole uterus in the circuit. While these uteri are ordinarily acutely flext, it is usually a comparatively easy matter to insinuate the electrode thru the soft canal. After the electrode is inserted, the two poles of the battery should be attacht and the current be turned on gradually until the limit of toleration is reacht, and there it should be held for five minutes. The interruptions or alternations should be slow, as one or one and one-half a second. The frequency of application varies from every day to once a week. In many cases after the current has acted a short time it can be increast in strength without increasing the discomfort of the patient, as it has a benumbing influence on the nerves of sensibility. This method will almost invariably relieve the most aggravated dysmenorrhea of this type after one month's treatment. To establish a cure it should be employed until the uterus develops a normal size and condition. The body of the organ will soon begin to fill out. The neck will shorten as its diameter increases with increase of muscular tissue. The flexion will grow less as the muscular tube stiffens with new growth and the atrophic spot due to the pressure takes on normal development. The effect on the general health in these patients is remarkable. The nervous system is toned; appetite increases; and pelvic lethargy disappears, as demonstrated by normal movements of the bowels, subsidence of vesical irritation, and relief of sacralgia.